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X-RAYS IN SMALL ANIMAL PRACTICE*

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In these days of modern scientific achievement there would seem little necessity for endeavouring to convince a body of professional men as to the value of X-rays in diagnosis.

It might perhaps be more difficult to convince you of their value in therapeusis, and I myself am still somewhat sceptical as to their successful application in most of the conditions for which they have been recommended. Doubtless there will come a time, however, when one will be able definitely to say that X-radiation, as a cure for cancer, lupus, and other diseases, is an established fact. It seems only a matter of time and further research.

In the attempt to convert those conservative-minded members who may be among us to-day, and who cling to the conviction that nothing can supersede the clinical diagnosis, I will later briefly outline the variety of abnormalities for the detection of which radiography has proved invaluable to medical, veterinary and dental practitioners alike. Indeed, even the engineering trade quite frequently has to resort to X-rays for the detection of flaws in metals.

The Nature of X-rays.—Before commencing that part of my paper, however, I think it might be interesting to explain, briefly, what X-rays are and how they are produced. Imagine a glass tube filled with air at atmospheric pressure. In one end is attached the anode (or positive) electrode, and in the other end the cathode (or negative) electrode. When these are connected to a sufficiently high unidirectional electromotive-force, a current passes, which, according to the nature of its source, is in the form either of consecutive sparks, or of a continuous arc of light.

If the gas pressure within the tube be steadily diminished, the charge will change its appearance continuously. At first the tube seems filled fairly evenly with glowing gas, then various differences occur until the glass wall of the tube begins to emit a greenish fluorescent light, the cause of which is the " cathode rays " that now occur in the tube. If the electrons, composing the cathode rays, strike the glass wall of the vessel, they are retarded and their energy is transferred to the glass. The latter becomes the source, not only of the visible fluorescent radiation, but of a new *invisible* species of ray which has been called, after its discoverer, the Röntgen-ray.

The radiation becomes richer in energy, or harder, if the electrons are retarded by materials denser than glass, such as platinum or tungsten, and if the voltage across the tube is increased. The X-rays have very nearly the shortest wave length, and how short they are can be gleaned from the following comparisons:

Wireless telegraphy and Radio waves.	Over 100 metres.
Hertzian waves.	From 100 down to 1 metre.
Infra-red (or heat) waves	From 1 m.m. to ·7 micron.
Visible light.	From 700 to 400 millimicrons. *i.e.*, 700 Au to 4,000 Au.
Ultra-violet rays.	From 4,000 Au to 10 Au.
Long-wave X-rays.	From 10 Au to ½ Au.
Diagnostic X-rays.	From ·5 to ·3 Au.
Therapeutic X-rays.	·2 Au.
Cosmic radiation.	About ·001 Au.

1 micron equals 1/1000 millimetre.
1 millimicron equals 1/1000 micron.
1 Angstrom Unit equals 1/10 millimicron.

The inestimable value of X-rays for diagnostic purposes is based on their ability to pass through certain substances impermeable to light. In the case of other substances there is a notable reduction of the radiation. Whereas, for instance, in a normal X-ray photo of a hand, the flesh appears only slightly because it is comparatively permeable, the bones are shown distinctly with all their details, because the bone substance weakens the X-rays to a greater degree.

The metal lead, in a sufficiently thick layer, can stop, practically completely, even the hardest radiation. Thin lead sheets are, on this account, commonly used as a means of protection. Glass containing lead also stops the rays to an appreciable extent though still transparent to visible light.

Fluoroscopy.—As you all know, X-rays themselves are invisible. If, however, they are allowed to fall on fluorescent substances (usually employed in the form of screens or sheets) these substances glow according to the intensity of the radiation and according to their own fluorescent properties.

You may already be aware that X-rays are employed not only in the production of radiographs, but by using a fluorescent screen, one may virtually look through the patient's body at a glance. As objects held between the source

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of light and the screen absorb a part of the radiation, they throw their outlines on the screen.

Objects consisting of substances of different densities yield images in which these substances are reproduced in varying degrees of brightness. In this manner, opaque materials (tissue, bone, etc.) can be recognised by the density of their images. All that is necessary for interpreting such images is a knowledge of the manner in which the images of given subjects normally appear.

As regards the interpretation of X-ray photographs, some practice is required for this, but interpretation is much facilitated by the application of the stereoscopic principle. Also it is easier to distinguish details when the film is held before a properly constructed viewing lantern, rather than against an electric light bulb.

Factors which have delayed Veterinary Radiography.—A great number of factors have been responsible in the past for the painfully slow advance in veterinary radiography, and it is rather difficult to say which factor has been the most potent. It probably lay between the primary cost of an efficient apparatus, and the difficulties of applying radiography to animals.

In initial expense is still a huge impediment to the general inclusion of an X-ray apparatus in practitioners' equipments. But apparatus suitable and quite efficient for use on small animals can be purchased nowadays from £100 to £150. More powerful apparatus, suitable for deeper penetration and requiring no longer exposure, would cost to-day from £200 to about £400.

But so little can really be done upon horses or cattle with any apparatus, on account of the scattering of the rays, that it would still probably be not worth while for any individual to spend the greater sum. The legs and feet of horses and cattle can, of course, be X-rayed tolerably easily, but the head and trunk are far too dense to give a decipherable picture.

The apparatus I have brought for your inspection will give a perfectly useful skiagraph of a horse's tibia, hock, humerus, radius, metacarpal and metatarsal bones, and will do the same with a human head after a 4-6 seconds exposure. Since a far greater number of occasions necessitating the use of radiography occur among the small animals, it seems to me that the possession of such an instrument as this is sufficient for the needs of most veterinary practitioners.

In past years all X-ray apparatus was terribly bulky and complicated, to say nothing of being primitive in comparison to what may be obtained at the present time. A portable apparatus was even sneered at, and authorities would have said it was a useless expenditure; but I think you will agree when you have seen these films that *this* portable apparatus, at any rate, is a worth-while proposition.

It has usually been considered that nobody could successfully undertake radiography unless he were an expert electrician, having given much thought and study to the technical side of the matter.

One certainly needs to have a practical mind and a certain amount of knowledge of fundamental laws; but the practising veterinary surgeon has to know no more than is barely necessary for the production of a useful skiagraph. After that his interest ceases. Any gentleman in this room could reach this stage of efficiency in a very short time, especially if he confined his attention to the simple apparatus exhibited.

It is probably a truth that the majority of veterinary surgeons have no electrical or mechanical knowledge whatever; they have never needed it, and certainly have been afforded no instruction at College in electrotherapeutics. It is high time this omission was rectified and if our new curriculum does not provide for such instruction, then I consider it should.

Some of the earlier attempts at X-raying animals were marred somewhat by inability to impose adequate restraint and secure perfect immobility for a sufficient length of time. In those days sensitive films had not been brought to such perfection as they have reached to-day, and whilst an exposure of five, eight, or ten seconds might have been necessary then, the same work can be done now in one or two seconds. Every part of the apparatus has in turn been subjected to continuous improvement, and very few films need be spoilt nowadays on account of slight accidental movement. Of course, in cases of extreme difficulty, animals may be narcotised, or even anæsthetised.

Another difficulty which might once have militated against radiography was the necessity for an electric supply. To-day, such a supply is fairly general all over the country, but where it does not exist, the difficulty has been overcome by the use of a small generator which can be worked quite easily by the back wheel of a motor car.

The apparatus here produced can be worked off a voltage of 105 to 120, or 215 to 235 A.C., but for use on other voltages an additional piece of apparatus, known as an auto-transformer, is required.

Work in the Darkroom.—Veterinary surgeons may raise an objection to the time required for developing and fixing the films. If a number of exposures were taken each day, this objection might conceivably be admissible, but as the general practitioner would only occasionally use his apparatus, he would probably consider the time negligible.

Using rapid developer, only five minutes are required for developing a film. The latter is then rinsed in water from which it is transferred to the fixing bath. By the use of rapid fixing salts instead of the ordinary salts, this operation is only a matter of another five minutes. The result can then be critically examined under a strong light.

For work in the darkroom one must presuppose some knowledge of ordinary photography, although this is not by any means essential. One can, of course, have developing and fixing done by a local photographer if such is preferred; but I feel sure that one's interest would become of such a high order that most people would prefer to carry out the whole operation personally.

It is really essential that one should be equipped with an absolutely safe dark-room lamp, preferably lit by electricity. Darkrooms are notoriously stuffy and it does not conduce to comfort to have a gas-jet or an oil-lamp burning in so small a space. The darkroom should be really dark, as X-ray double-sided films are extremely sensitive, and the slightest fogging would ruin the clarity and hence the value of negatives.

I use the ordinary flat enamel dishes for developing and fixing, but one can, if one will afford it, provide oneself with vulcanite perpendicular tanks, which certainly are somewhat more convenient and will deal with several films at one time. Provided, as they are, with light-tight covers, one may come out of the darkroom if desired whilst the process is going on.

Nearly every house has some small room or cupboard which can be pressed into service as a darkroom, and one never need go to the expense of creating a special building. Large linen cupboards, lavatories, boxrooms and the like, can all be made light-proof and can be fitted with an electric lamp on a length of flex, from any point, even afar off.

Possibilities of Danger.—Now just a word upon the question of danger from electric shock or from exposure of patient or operator to the rays. In the use of elaborate apparatus of most makes, there is a distinct danger from the first contingency unless one has a definite technical knowledge, because the comparatively unprotected high tension cables convey extraordinarily high voltages, even as much as 250,000 volts.

In the use of the Philips Metalix apparatus, however, there is absolutely no possibility of danger. Every part is earthed and insulated to such perfection that no matter where one placed the hand, the possibility of shock is completely ruled out. By the presence of interlocking rings it is also impossible to connect the apparatus to the main supply unless the tube and transformer have first been assembled. Conversely, when once erected, no attempt can be made at dissembling without the removal of the plug connection—an operation which leaves the apparatus completely isolated and consequently safe to work upon. In fact, it is fool-proof and danger-proof.

As regards the second contingency, it has been found by experiment that with the Metalix apparatus a patient can be continuously exposed at 10-in. (23 cm.) for 12½ minutes before the erythema stage is produced: at 40 cm. (16-in.) the time would be approximately 37½ minutes. The protection against radiation outside the effective X-ray beam is complete, so that the operator never actually comes in contact with the rays. This, in any case, is not so very highly important unless a man is working frequently with his apparatus, because X-rays have a cumulative effect, and X-ray dermatitis arises from the constant unknown exposures to uncontrolled rays.

The Metalix Portable Apparatus.—I have already given some of the salient points of the apparatus before you, but I have not told you all you would probably like to know about it. First as to its portability. The main part of the instrument and its accessories all pack away in a leather suit case which is provided with the outfit, and the weight of this is 30 lb. The transformer is fitted with a waterproof hood and a carrying handle and weighs 40 lb. Both units can be carried in a car quite well and the whole apparatus can be assembled ready for use in less than ten minutes. The ease of portability enables a practitioner to operate the instrument in a client's own home.

The outfit is singularly devoid of the customary control gear, measuring instruments, etc., which as a rule call for some preliminary tuition before the intelligent use of the instrument can be embarked upon. It is, however, provided with a time switch, which is the only controlling mechanism.

The correct exposures are already worked out and one merely sets the time switch according to the subject it is desired to examine. I have made a series of experiments with the object of deciding the best exposure times for various parts of the cat and dog body, and I understand that the makers of the instrument are intending to adopt my scale in their instructions to veterinary surgeons.

The distance between the tube (focus) and the film, is also worked out to suit the density of the part to be X-rayed, and this focus is altered by extending or shortening the telescopic legs of the apparatus. Thus, all adjustments for height or centreing are quickly and easily made. Rotation of the tube on its own axis also permits of the projection of the beam at any desired angle. When the tube is turned so that a horizontal beam is thrown, then an animal can be

observed on the fluorescent screen without going to the extra expense and time of taking a skiagraph.

This screen is held close behind the part which is to be examined and an image can be clearly seen and may be continuously watched up to about ten minutes if necessary. The expenditure of current for so long an exposure is entirely negligible. In order to keep the tube cool during screening, a forced-draught fan is attached which automatically comes into use.

There are no installation costs with the Metalix and special wiring is unnecessary. Any convenient lighting point will suffice for a current supply.

Method of Procedure.—Having assembled the apparatus on a table, and having adjusted the length of the telescopic legs, the aperture in the Metalix tube is then directed down towards the table or floor—whichever is being used.

The aluminium cassette, having been loaded in the darkroom, is placed centrally beneath the lead glass cone and the animal's body is laid directly on top of it. The closer the part to be exposed is placed in apposition to the film, the better the negative. Care must be taken to keep the animal still for the second or two of exposure, and the time-switch having been set according to the time required, one has then only to press the button and the exposure is made.

The skiagraph may alternatively be taken with the animal standing, though in this case the cassette is held, steadily, close behind the body on the side furthest away from the apparatus. The only difficulty in this case might be that of holding the cassette still enough.

The time of exposure will increase in proportion to the increase in density of the part to be penetrated. Thus the femur of a cat would require three seconds exposure as against four seconds required for the leg of a terrier, using unaided films. For the body of a cat nine seconds exposure would be necessary, and 12 seconds for the body of a dog. These exposures, you will exclaim, are far too lengthy, as respiratory movements alone would blur the picture. This has already been realised and the difficulty has been overcome by the employment of an auxiliary device known as an intensifying screen. This, in appearance, is similar to a piece of art paper, but its shiny surface is composed of a chemical film which fluoresces in the presence of X-rays. The effect, therefore, is greatly to intensify the strength of the rays falling upon the sensitive photographic film. Still further intensification is produced by using *two* screens, one on each side of the film, and all three are placed in the cassette when loading up. Intensifying screens reduce the time of exposure by eight, so that we find we can take a perfect skiagraph of a fox terrier's chest in 1½ seconds only, a cat's femur in ½ second, or a dog's femur in ¾ second. Similarly, a horse's lower leg requires a 10 second exposure at 40 cm. (16-in.) distance.

In my own practice I find it necessary quite frequently to X-ray the digits of greyhounds, and I generally use a double-wrapped film (4¼-in. by 3¼-in.) without a cassette or screens, and give a three seconds exposure at 16-in. A perfect picture is thus obtainable, as I will show you very shortly. A cat's paw would require 2¼ seconds under similar circumstances.

If the animal is dreadfully fidgety, then the same sized film can be placed between two screens in a cassette and the exposure will be eight times quicker. The speed of the film should also be taken into consideration.

It would be impracticable to take antero-posterior skiagraphs through a dog's chest or abdomen without using screens, as in these instances a considerable density of tissue has to be penetrated. The quickest possible exposure is essential on account of respiratory movement.

As regards exposures, the shorter, softer, and undesirable rays are found to give greater detail for soft tissues, whilst the harder rays are better for bones. In the general use of this instrument one does not lift the aluminium filter which is fitted over the aperture of the tube. This cuts out the undesirable rays. But this filter *is* lifted if a radiograph of abdominal contents or of lung tissue is required; and then the exposure time is decreased by 30 per cent.

For small animals the f/f distance is usually recommended at 16-in. Obviously if this distance is increased one will obtain a larger picture, and in addition, there will be less distortion. But the exposure must then be increased, which is not an advantage.

The time of exposure is proportional to the squares of the distances. For instance, if the distance is doubled, then the exposure must be increased four-fold; and so on.

Important Points to Remember.—The main direction of the rays must be perpendicular to the sensitive film or as nearly so as possible, to avoid distortion of the picture.

The focal point (or aperture in the tube), the centre of the subject, and the middle of the film, should lie in a straight line, thus obtaining the most uniform illumination.

The limb or other part to be skiagraphed should be placed as flatly as possible on the cassette so as to obtain sharp definition. The further the subject is from the film the poorer the definition of the outlines.

The lead-glass cone should generally be used as it confines the rays fairly completely to the part of the body where they are actually

needed. The operator should avoid exposing his fingers or other parts too frequently to the rays.

Diagnostic Uses of X-rays

There is a multitude of conditions met with almost daily in canine and feline practice in which the employment of an X-ray apparatus could be of the utmost value.

1. *Fractures and Dislocations.*—Undoubtedly one's first thoughts turn to the diagnosis of fractures and dislocations, for which purpose a radiograph is of inestimable aid. All of us must at some time or other have encountered those " run over " cases in which the animal evinces great pain and lameness although nothing definite can be discovered even by the most painstaking clinical examination. We know, too, how severe bruising of certain sensitive parts will make a dog hold up a limb as though it were broken; and we know how easily our diagnosis can be a mistaken one. This refers in particular to greenstick fractures.

Dislocations, too, are not always obvious, especially when there has ensued much inflammatory swelling. An X-ray apparatus, at hand in the surgery, at once settles one's doubts. Furthermore, one can ascertain with what success one's efforts have been attended in the attempt to reduce dislocations, or set fractured bones in correct alignment.

2. *Abnormal Joints.*—Ankylosis, complete or partial, would of course be detected by X-rays, as would arthritis which is complicated by even slight degrees of ossification of the cartilages.

Greyhounds in particular are much troubled with so-called knocked-up-toe, a condition in which the digit (about a joint) is much enlarged, hard, and sometimes tender to the touch. The dog is lame in the early stages and one might suspect fracture of the epiphyses of the digital bones, or dislocation. In most cases, however, neither condition is present, but there is a fibrositis or peri-articular thickening. Photo No. 3 (exhibited) shows this condition well.

3. *Bone Diseases.*—Some cases of periostitis have been observed, and, of course, an exostosis such as ringbone, splint, sidebones, etc., in horses would be quite easily detected. Abnormal densities of bone show up well and are exemplified in cases of rickets, osteoporosis, rarefying ostitis, etc.

4. *Diseased Teeth.*—In human practice it is the common procedure nowadays to X-ray the jaws when septic foci are suspected, but in canine and feline practice we do not recognise true caries of the teeth. We may and do find, however, pus sockets at the apices of teeth, the pus being represented, in negatives, as a dark area about the roots. Alveolitis is discovered by the presence of a dark streak running along the tooth from apex to crown. Unerupted teeth are well shown in a radiograph.

Quite recently a veterinary surgeon practising near London brought to me a Labrador suffering from a discharging sinus on the face, which looked as though it had its origin from disease of the canine tooth on the same side. With considerable difficulty (on account of movement of the head) I finally got two respectable pictures (Nos. 6 and 7, exhibited). We could not detect any abnormality in the negatives but I believe that eventually the tooth was drawn.

5. *Navicular Disease.*—Major Pryer, of the Army Veterinary School, Aldershot, has had very considerable experience in radiographing horses, and he contends that the technique adopted by the school is second to none in the diagnosis of navicular disease. The following is an abstract of what he stated recently at a meeting of the Royal Society of Medicine:—

" Of the changes which occur frequently in diseased navicular bones, we look for (1) increased width of the bone, due presumably to a rarefying osteitis and evidenced by a fluffy appearance mainly at the superior border; (2) the formation of bony spurs at the extremities of the bone. These spurs are not constant but occur very frequently, and when present are the most easily demonstrated pathological change. From examination of over 200 navicular bones, I find it most exceptional to get the spurs without carious areas being present in the tendinous surface of the bone.

" I believe if one can demonstrate these spurs radiologically one may diagnose navicular disease without any hesitation. The matter of the early diagnosis of N.D. in Army horses is of economic importance. To wait until clinical symptoms are sufficiently marked to warrant an order of destruction, may entail feeding a useless mouth for months.

" As N.D. is incurable, we have been in the fortunate position of being able to compare clinical symptoms, radiological findings, and *post-mortem* appearances, and we find the X-rays pretty well vindicated."

Reverting to small animal practice, tuberculosis of the long bones may be demonstrated in dogs and cats when it occurs, as also may calcified tuberculous glands in the lungs, mesentery or other parts of the body.

6. *Tumours.*—So far, I have not personally been approached to diagnose neoplasms by X-ray, but I have seen many efforts of other people, and quite often such tumours as sarcomata, epitheliomata, fibromata, etc., show up quite well. Sarcomatous growths on bone show up as a thinning and enlargement of the bone tissue. Where one limb only is affected, it is as well to include both limbs in the picture, so that one may be compared with the other.

Internal tumours appear as more or less discrete pale areas in positions which normally should appear dark. A method is being pursued now for intensifying the outline of such tumours, and it consists in the administration of medicinal doses of lead salts for a few days prior to X-raying. Some of the lead becomes deposited in the tumour substance and intensifies the shadows cast.

If internal growths are suspected it is certainly a great advantage to obtain skiagraphs of the animal taken from two different aspects.

7. *Foreign Bodies.*—One of the outstanding uses of Röntgen rays is the detection of foreign objects in all parts of the living body. So far as the dog or cat is concerned, it is a frequent occurrence to be asked to decide whether an animal has swallowed a bone, needle, coin, rubber ball, or other article; and whilst all metal articles will show up definitely and plainly, the same cannot be said of softer articles. On photo No. 50 (exhibited) which is of a cat, you can easily see a needle lying in a longitudinal direction in the stomach. This skiagraph was taken years ago by Caldwell.

If a skiagraph does not reveal the presence of a suspected foreign body, then an opaque meal must be given. The meal is usually an emulsion of barium carbonate or bismuth with gum acacia, and if the animal refuses to swallow it, then the mixture is given by means of a stomach tube. Once in the stomach, the opaque emulsion would stop the X-rays whilst the more permeable foreign body would allow them to pass, and so a shadow would be seen.

Metallic objects in the pads of the feet, grit in interdigital cysts, shots from sporting guns, and many other kinds of foreign bodies may all be revealed by radiographs. Pebbles, coins, marbles, nails, pins and similar opaque objects can plainly be seen and the surgeon is immensely aided by his knowledge of their exact location. There is here (shown) an interesting picture of a bullet in a cat's neck.

8. *Calculi.*—Then there is another type of foreign body—that which grows within the animal—the presence of which is often only guessed at. I refer to cystic, renal, and urethral calculi. The urinary calculi are quite common, especially those formed in the bladder.

It is often said that one should be able to diagnose this condition by palpation, but I defy anybody to do so with precision in a large number of instances, particularly in very fat subjects.

X-rays, in some cases, have been said to fail also, and it is quite conceivable that some calculi (as in the case of pieces of cork, sponge, wood, or other soft structures) might not impede the rays to any appreciable extent. When they *are* seen, however, one's diagnosis is positive. It is not often that calculi fail to show up and when they do, the fault may lie with the technique. At least, this was the opinion given by Dr. R. A. Salmond at a recent meeting at the Royal Society of Medicine.

A Dorking veterinary surgeon recently submitted two skiagraphs to me for interpretation. The pictures—taken locally—were a lateral, and an antero-posterior view of a cat's abdomen. The cat had suffered from some urinary disturbance simulating cystitis and the radiographs showed definitely a foreign body in the right kidney. On ultimate *post-mortem*, however, this turned out to be a calcified mesenteric gland.

9. *Pregnancy.*—The question as to whether certain females are pregnant or not, is one which quite regularly crops up in general practice and from a clinical examination alone, I must admit to having quite often found it a difficult matter to decide.

The veterinary surgeon may feel one or more small ovoid bodies through the abdominal wall and believe them to be fœtuses, but it is not impossible for such bodies to be kidneys, bladder, enlarged glands, fæcal masses, fat, or enlarged womb from some other cause. He may, on the other hand, feel nothing at all in spite of the fact that fœtuses are really present.

Even a radiograph will probably not settle the question until a bony skeleton has commenced to develop, and then it should be possible to detect bones which obviously form no part of the mother's skeleton. An excellent picture of a gravid womb is exhibited.

In human surgery, X-rays have been employed to ascertain the size of the pelvis in relation to parturition. They might equally well be used for this purpose in valuable brood bitches.

10. *More Obscure Conditions.*—There is a number of conditions which may be described as rare, and which, on that account, may be dismissed as of no importance where X-ray diagnosis is concerned. Because of their rarity they are probably far more difficult of clinical diagnosis, and their mystifying symptoms should naturally suggest the employment of Röntgen rays.

I once treated a very sick cat but could not label its condition until a skiagraph was taken. Then I discovered a ruptured diaphragm through which the entire stomach had passed and was occupying one half of the thoracic cavity. (Illustrated.)

Where some displacement, stricture or dilatation of the stomach or of part of the intestinal canal is suspected, the animal is given a draught of opaque emulsion. After waiting until the salt has become suitably distributed, an X-ray photograph of the abdomen is taken and the outlines of those organs to which the salt has been carried, can be made out as pale areas in the negatives.

Dilatation of the heart, solidification of lung, fluid pleurisy, pneumothorax, brain tumours, and the worm cysts that constitute " sturdie " in the brain of sheep, may all be detected.

I have heard some mention of animals' hair becoming electrified and causing them to be startled when being X-rayed. So far, however, I have never observed a single instance of this and feel quite sure that the momentary movement which sometimes takes place is caused by

switching on, or by the slight noise of the rotary motor-driven fan for the cooling of the tube. With fidgety dogs I have occasionally had to get them used to this noise by repeating it a few times prior to the actual exposure.

In photographing tooth roots, the f/f distance is reduced to as little as 8-in., and still there is no electrification of hair.

Concluding, I would like to urge upon this assembly the great necessity of veterinary surgeons acquiring a knowledge of medical electricity, for there is no doubt but that mechanical and electrical aids to diagnosis and therapeusis are assuming a very important position indeed.

The up-to-date canine surgeon should have at least a working knowledge of Faradism, galvanism and ionisation, high frequency currents, such as diathermy, etc., ultra-violet irradiation, and radiography. Except by his own ambitions and personal efforts he will never achieve this laudable end; nor will the undergraduate, unless the veterinary schools become equipped with all up-to-date appliances, and are staffed by men who understand them.

Medical men who took up radiology have become specialists and command very remunerative fees. I see little reason to-day why veterinary surgeons do not follow their precept.

For the following strong reasons I advise the purchase of an X-ray apparatus by all practitioners who can possibly afford to do so:—

1.—The easier, quicker, and more certain diagnosis in appropriate cases, leads to better results and an enhanced reputation.

2.—Where the client will agree to pay for the service, the profit to the veterinary surgeon is well worth while. Where he will not, the practitioner still has the satisfaction of X-ray aid at small cost to himself.

3.—There is no doubt but that the furnishing of a surgery with modern technical apparatus is a factor which must surely lend greater prestige to the practitioner in the eyes of his clients, and of his medical colleagues, and must have the unobtrusive but quite certain collective effect of raising the status of the profession generally.

4.—As a means of clinical investigation or laboratory research X-rays can be of inestimable value.

5.—The possession of one's own apparatus obviates the necessity for making appointments with other people, often at considerable inconvenience to one or other of the parties; and cuts out the transportation of sometimes seriously injured animals over long distances.

6.—Finally, in some cases of litigation, one can very greatly strengthen one's evidence by the production of supporting radiographs—in instances which lend themselves to such procedure.

I will now show you the whole routine of X-raying an animal, and invite any gentleman who is doubtful upon any point, to have no hesitation in asking questions.

THE USE OF ELECTRICITY IN THE STUNNING OF ANIMALS

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There has recently been introduced into this country an electrical method for stunning animals prior to slaughter for food; this method is a modification of that described by Ducksbury and Anthony (1929) and the voltage used is only about 50. The current is obtained from the usual 200 volts, 50 cycle A.C. lighting circuit and is reduced to 50 volts by a transformer; no information is available to show whether the wave form is altered in any way. The electrodes are at the end of the jaws of a tongs-like instrument and are applied, after soaking in saline, one on each side of the animal's neck close behind the lower jaw; they may also be placed one below the lower jaw and the other between the eyes. The current is switched on by pressing a button on one handle of the tongs. The method is at present only universally applicable to pigs because of the difficulty in other animals of overcoming the resistance of the hair or wool of the pelt.

Immediately the current is switched on the pig becomes rigid and immobile and there is usually emptying of the bladder and sometimes of the rectum; so far as can be judged, consciousness is lost at once. The application of the current is maintained for a length of time which varies according to size of animal and hairiness of coat from 5 to 20 seconds. The duration is usually nearer the lower figure. When the current is shut off the animal lies unconscious but in some cases slight irregular movements of the limbs or a walking reflex are observed; breathing appears to proceed normally and if the animal be allowed to recover, which it does in about two minutes, it regains its feet in a leisurely manner and walks around apparently unperturbed by its experience. In the usual course of slaughter, however, the pig is hoisted head down on a pulley as soon as the electrodes are taken off and stuck for bleeding. There is no sign of a return of consciousness during this time and no evidence that the pig suffers pain when stuck. If movements of

the limbs make it difficult to shackle the hind leg they can be immediately stopped by a second application of the current.

The older method of electrocution already referred to caused violent contraction and actual rupture of muscles with hæmorrhages into the muscles. This is entirely avoided in the modified method and " blood-splashing " appears to be absent; in fact, there is evidence that the meat of pigs slaughtered after being stunned with the new device contains even less blood than that of pigs which have been stuck with-

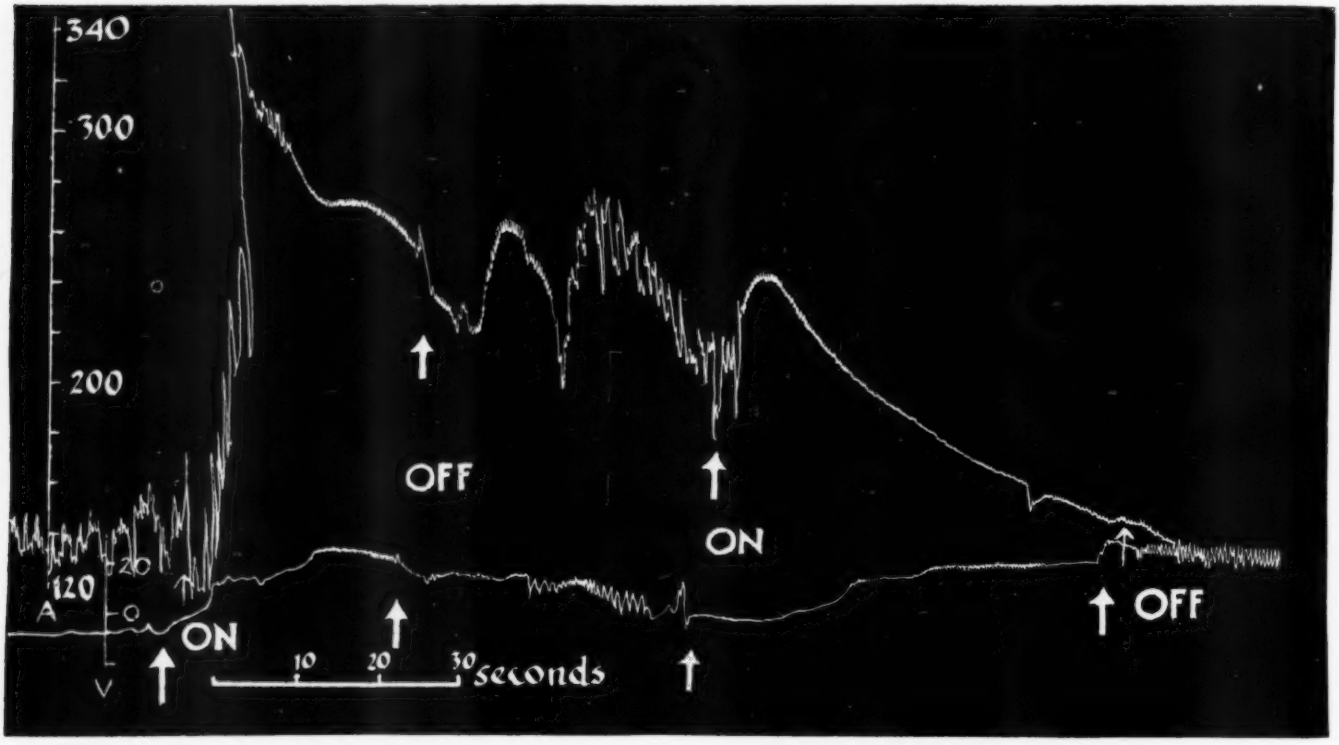

Fig. 1.—Upper record—arterial pressure. Lower record—venous pressure. Arrows at ON mark beginning, and those at OFF end of current application.

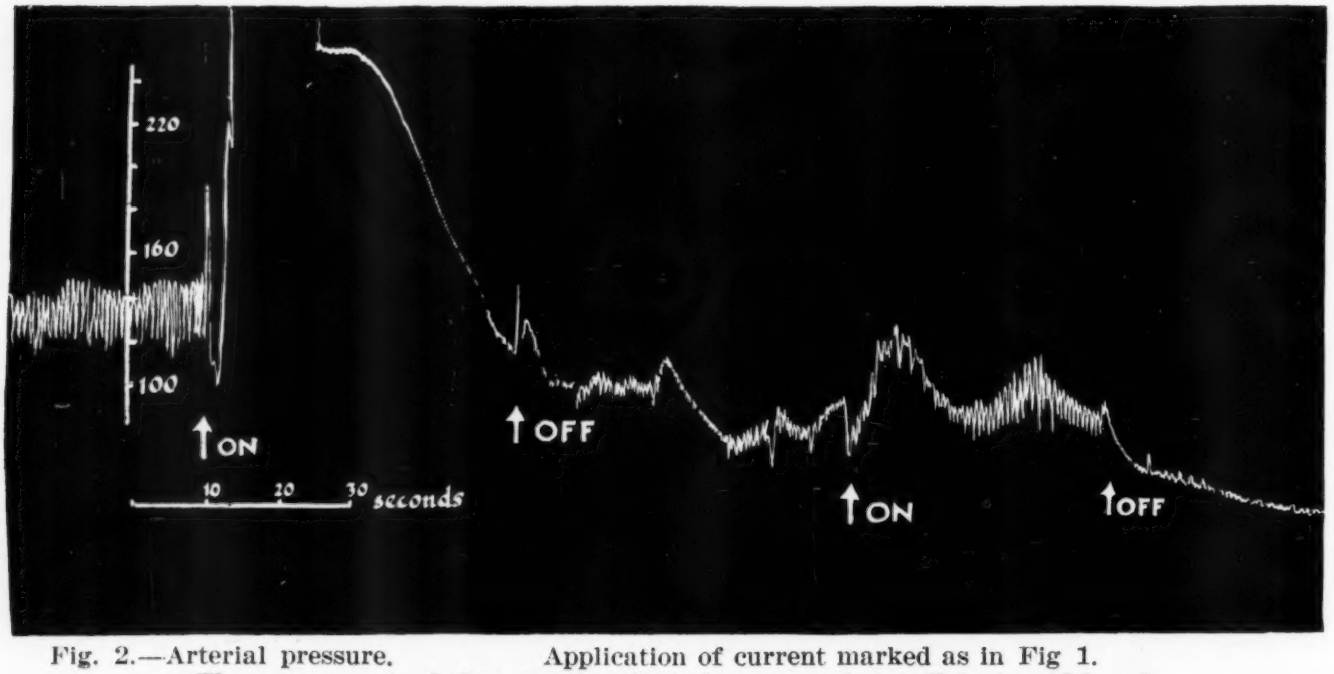

Fig. 2.—Arterial pressure. Application of current marked as in Fig 1. The upper part of the record is lost because of insufficient width of smoked paper; the maximum pressure was about 360 mms. Hg.

out preliminary stunning of any kind (Edington and Elliott, 1931).

The evident difference in blood content of the meat of pigs shot with the captive bolt pistol and of those stunned by the new electrical method led to the investigation of blood pressure changes produced by the application of the electric current. It has already been shown that when sheep have been shot by the captive bolt pistol the arterial blood pressure rises suddenly to about twice its initial value and the venous pressure also rises 10 or 20 mm. Hg. (Tweed, Clark and Edington, 1931). Sheep were used in the present investigation in preference to pigs because of the greater ease with which they can be handled and because the neck vessels are more easily accessible. The neck was shaved and wetted with saline to ensure good contact with the electrodes. Cannulæ were inserted under local anæsthesia into the carotid artery and jugular vein and connected by tubes, containing half-saturated sodium sulphate, with mercury manometers, the movements of which could be recorded on a smoked drum by the usual type of writing lever. When the pressure levels were steady the current was switched on, with the result that the arterial pressure rose very rapidly to about three times the initial level (Fig. 1); the venous pressure also rose, and more rapidly and to a greater height than that seen on shooting with the captive bolt pistol. It will be seen from Fig. 1 that the maximum arterial pressure is not maintained despite the continued application of the current and when the latter is switched off there is a further fall; in Fig. 1 this is interrupted by a rise caused by movements of the animal but is better seen in Fig. 2 and is most noticeable when the duration of current is shorter. A second application (Figs. 1 and 2) does not produce the same degree of rise in blood pressure, but does appear in some cases (Fig. 1) to accelerate a condition of heart failure as indicated by increased heart rate, a fall in arterial and a rise in venous pressure; in Fig. 2 failure appears after the current is switched off. It seems evident that the rise in blood pressure is due to general stimulation of the sympathetic nervous system and the pressure is further increased by tonic contraction of all the voluntary muscles; this latter factor is absent when the animal is shot by the captive bolt pistol and probably accounts for the smaller rise in blood pressure and greater blood content of muscles in animals stunned by the pistol, compared with animals electrically stunned. It it obvious from these experiments that rise of blood pressure *per se* is not responsible for "blood splashing," for no case of "splashing" has been seen in animals stunned by the modified electrical method, but it does not contradict previous conclusions that a high blood pressure may be a contributory factor if the muscle vessels are already engorged (Tweed, Clark and Edington, 1931).

It is not difficult to account for the tonic muscular contraction or for the rise in blood pressure, but the cause of loss of consciousness is obscure. That consciousness is lost there is little reason to doubt, for, were it not so, the animal would make some attempt to regain its feet immediately the current is switched off, and would undoubtedly give vocal evidence of discomfort; moreover, during the hoisting process, there is generally less movement than in shot animals and there is no indication of pain on sticking. It was thought at first that loss of consciousness was produced by the sudden enormous rise of blood pressure causing a sudden increase in intracranial pressure similar to that of cerebral hæmorrhage, but this is ruled out by the fact that a second application of the current causes a negligible rise in blood pressure and yet unconsciousness is definitely prolonged. Actual hæmorrhage into the brain has not been found and, moreover, pigs have been seen to recover consciousness within two minutes at most without any obvious disability. Loss of consciousness, then, cannot be attributed to an organic lesion of the brain or to sudden rise in pressure producing what the older clinicians designated "insult" to the brain, nor yet to a fall in blood pressure causing cerebral anæmia; cerebral anæmia due to constriction of cerebral vessels is unlikely in view of (*a*) the high blood pressure and (*b*) the relatively ineffective innervation of cerebral vessels. Asphyxia as a causative factor can be ruled out because of the rapid effect of the electric current and the fact that no signs of hyperpnœa are evident during recovery. The possibility is left that unconsciousness may in some way be due to the production by the electric stimulation of what, for want of a better name, may be called a confusional state, but much more evidence is necessary before this suggestion can be definitely adopted.

A suggestion has been made that the apparatus may be used to produce unconsciousness in animals for minor operations, but in view of the enormous strain on the circulatory system the wisdom of this suggestion is doubtful.

References.

Ducksbury and Anthony, 1929, *Veterinary Record*, Vol. 9, p. 433.

Edington and Elliott, 1931, *Ibid.*, Vol. II, p. 1303.

Tweed, Clark and Edington, 1931, *Ibid.*, Vol. II, p. 23.

Addendum.—Reference to the Patent Specification of the "Electrolethaler" indicates that the current applied at the electrodes is a continuous one interrupted by means of a cut-out 8,000 to 10,000 times per minute.

NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN and IRELAND

Congress at Folkestone, August 8th-13th, 1932

PROVISIONAL PROGRAMME

The following is the Provisional Programme of the Association's Congress, to be held at Folkestone from August 8th to August 13th:—

MONDAY, 8TH, *10 a.m.*—Opening of the Congress by the President.
MONDAY, 8TH, *11 a.m.*—Paper: "Recent Advances in Therapeutics."
MONDAY, 8TH, *Evening.*—Reception by President.
TUESDAY, 9TH. 9.30 *a.m.*—Paper: "The Relation of Meat and Meat Products to Bacterial Food Poisoning in Man."
TUESDAY, 9TH, *11.30 a.m.*—Paper: "Anærobic Infections of Sheep as seen in the Romney Marsh."
WEDNESDAY, 10TH, *9.30 a.m.*—Paper: "A Comparison of the Systems of Meat and Milk Inspection in this Country and Abroad.
WEDNESDAY, 10TH, *11.30 a.m.*—Paper: "The Diagnosis of Gastric and Intestinal Diseases of the Dog and Cat."
WEDNESDAY, 10TH, *2.30 p.m.*—Council Meeting.
WEDNESDAY, 10TH, *3.30 p.m.*—Annual General Meeting.
WEDNESDAY, 10TH, *Evening.*—Annual Banquet.
THURSDAY, 11TH.—Demonstrations.
FRIDAY, 12TH, *9.30 a.m.*—Paper: "Clinical Examination of the Cow's Udder."
FRIDAY, 12TH, *11.30 a.m.*—Paper: "Contagious Abortion: (*a*) vaccination; (*b*) its relation to Undulant Fever."
SATURDAY, 13TH, *9.30 a.m.*—Closing Meeting.

SUBJECTS FOR PAPERS

PUBLIC HEALTH SECTION

(*President*: *Arthur Gofton, Esq.*, F.R.C.V.S.)

1.—"The Relation of Meat and Meat Products to Bacterial Food Poisoning in Man."
By R. Lovell, M.SC., M.R.C.V.S., D.V.S.M., London.
Opener: Professor J. F. Craig, M.A., M.R.C.V.S., Dublin.

2.—"A Comparison of the Systems of Meat and Milk Inspection in this Country and Abroad."
By Major D. S. Rabagliati, B.SC., F.R.C.V.S., D.V.S.M., Wakefield, and Lieut.-Colonel T. Dunlop Young, M.R.C.V.S., D.V.S.M., London.
Opener: Lieut.-Colonel J. A. Dixon, T.D., M.R.C.V.S., Leeds.

VETERINARY MEDICINE AND SURGERY SECTION

(*President*: *Professor James Macqueen*, F.R.C.V.S.)

1.—"Recent Advances in Therapeutics."
By Arnold Spicer, F.R.C.V.S., Oxted.
Opener: Dr. J. Russell Greig, M.R.C.V.S., Edinburgh.

2.—"The Diagnosis of Gastric and Intestinal Diseases of the Dog and Cat."
By Professor J. G. Wright, F.R.C.V.S., London.
Openers: Major Frank Chambers, F.R.C.V.S., Wolverhampton; Major Hamilton Kirk, M.R.C.V.S., London.

3.—"Clinical Examination of the Cow's Udder."
By Capt. R. Simpson, F.R.C.V.S., D.V.S.M., Carlisle.
Opener: Thomas Wilson, M.R.C.V.S., Nantwich.

EXPERIMENTAL PATHOLOGY SECTION

(*President*: *Professor J. Basil Buxton*, M.A., F.R.C.V. S., D.V.H.)

1.—"Anærobic Infections of Sheep as seen in the Romney Marsh."
By A. D. McEwen, B.SC., M.R.C.V.S., Wye.
Opener: Dr. R. F. Montgomerie, B.SC., F.R.C.V.S., Bangor.

2.—"Contagious Abortion: (*a*) vaccination; (*b*) its relation to Undulant Fever."
By Dr. W. H. Andrews, M.R.C.V.S., Weybridge.
Openers: Dr. F. C. Minett, M.R.C.V.S., London; Professor G. S. Wilson, London.

LIST OF HOTELS

UPPER TOWN:

Adelphi, 2, *Augusta Gardens, near the Leas,* £4 4s. to £5 5s. per week, or 12s. 6d. to 15s. 6d. per day.
Avondale, 19, *Clifton Gardens,* £3 13s. 6d. to £5 5s. per week, or 10s. 6d. to 14s. 6d. per day.
Bannockburn, 27, *Castle Hill Avenue,* from 2½ guineas weekly.
Belvedere, 12, *Trinity Crescent, en pension,* £4 4s. per week, or 14s. 6d. per day.
Blount's (Private), 28, *Clifton Gardens,* from £4 4s. per week.
Bouverie House, 25-26, *Bouverie Square, en pension,* 3-3½ guineas per week.
Bristol, 2-3, *The Leas,* from £4 4s. per week, or from 12s. 6d. per day.
Cambridge (Private), 24, *Clifton Gardens,* from £4 4s. per week.
Casbon House, 14, *Castle Hill Avenue,* from £3 3s. weekly.
Clifton, *The Leas,* £5 15s. 6d. to £10 10s. per week, or 16s. 6d. to 30s. per day.
Comans, *Castle Hill Avenue,* from £4 4s. to £6. 6s. per week, or from 13s. 6d. per day.
Carlton (Private), 18-19, *The Leas, en pension,* from 10s. 6d. to 19s. 6d. per day.
Flordon House (Private), 10, *West Terrace, en pension,* from £3 13s. 6d. per week.
Garden House, 142, *Sandgate Road, near the Leas,* from £5 15s. 6d. per week, or from 16s. 6d. to 25s. per day.
Glendower (Private), 29, *Clifton Gardens,* £3 13s. 6d. to £4 14s. 6d. per week.
Grand, *West Leas* (licensed), from 25s. per day.
Gresham (Private), 18, *Clifton Crescent,* £3 3s. to £5 5s. per week.
Highcliffe (Private), 22-23, *Clifton Gardens,* from £3 3s. per week, or 10s. per day.
Holderness (Private), *Clifton Crescent,* from £3s 3s. per week or 10s. 6d. per day.
Hurlingham, 18, *Clifton Gardens,* £3 3s. to £5 5s. per week.
Kildare (Private), 17, *Clifton Gardens,* £3 3s. to £5 5s. per week, or from 10s. 6d. per day.
Langhorne, *The Leas, en pension,* from £4 4s. per week.
Lincoln (Private), 20-24, *Bouverie Square, en pension,* from £3 3s. per week.
Leas (Licensed), *Clifton Gardens, The Leas,* 5½ to 7½ guineas per week.
The Longford (Private), 7, *The Leas,* 4 to 5 guineas per week.
Lyndhurst, *Clifton Gardens, The Leas,* from £7 7s. per week.
Majestic (licensed), *Castle Hill Avenue,* from 17s. 6d. per day for not less than 5 days.
May-Fair (Private), 9-10, *The Leas,* from £3 13s. 6d. per week, *en pension.*
Montclair (Private), 21, *Clifton Gardens,* from £3 3s. per week.
Moore's, *The Leas,* from £3 13s. 6d. per week.
Norfolk (licensed), 10-12, *Langhorne Gardens,* 5 and 5½ guineas per week.
Queen's (licensed), *Sandgate Road,* from 15s. per day for not less than three days.
Salisbury (Private), *Langhorne Gardens, The Leas,* £5 5s. to £7 7s. per week, or from 15s. per day.
Skelmersdale, 22-24, *The Leas,* 4 to 6 guineas per week.
St. Genny's (Private), 26, *Clifton Gardens,* from £3 13s. 6d. per week.
Torrington (Private), 14, *Bouverie Square,* from £3 3s. per week.
Trevarra (Private), 30, *Bouverie Road West, en pension,* from £3 3s. per week.
Wampach (licensed), 31-37, *Castle Hill Avenue,* from 17s. 6d. per day.
White House (Private), 5, *Clifton Gardens,* from £3 13s. 6d. per week.

Board-Residence:

"Twyford," 4, *West Terrace, The Leas,* 3-5 guineas weekly.
York House, 6, *West Terrace, The Leas,* from £3 3s. weekly.

LOWER SEA-FRONT:

Beach House, 10, *Marine Parade,* from £3 3s. per week.
Devonshire House, 8-9, *Marine Parade,* from £3 13s. 6d. per week.
Pier, 1-2, *Marine Crescent,* from 2½ guineas weekly.
Royal Pavilion (licensed), £6 6s. to £8 8s. per week, or from 18s. per day.
Victoria (Private), 13-14, *Marine Crescent,* from £3 3s. weekly.

Board-Residence:

Barrelle House, 14-15, *Marine Parade,* from 2½guineas weekly.
Chatsworth, 4-5, *Marine Crescent,* from 6s. per day.
Crescent House, 11, *Marine Crescent,* from £3 3s. weekly.
Stoneleigh, 12, *Marine Crescent,* from 3 to 3½ guineas weekly.

Sandgate

Royal Kent (licensed), from £6 6s. per week.

Hythe

Sutherland House (licensed) from 3½ guineas per week.

As Folkestone is an extremely popular South Coast holiday resort, application for rooms should be made forthwith to ensure accommodation.

All the hotels mentioned above will gladly send further particulars upon request.

Respective Memberships R.C.V.S. and N.V.M.A.: Comparison by Counties.

LISTS SHOWING THE NUMBER OF VETERINARY SURGEONS LIVING IN COUNTIES AND THE NUMBER OF THESE WHO ARE MEMBERS OF THE N.V.M.A.

England

	County.	Total.	Members, N.V.M.A.	Per-centage.
	Huntingdonshire ...	6	5	83
81	Cornwall	16	13	81
	Suffolk	27	22	81
75	Herefordshire ...	15	12	80
	Gloucestershire ...	26	21	80
80	Wiltshire	20	15	75
	Rutland	4	3	75
	Yorkshire (North Riding)	18	13	72
	Bedfordshire ...	10	7	70
70	Devonshire ...	40	28	70
	Durham	37	26	70
	Staffordshire ...	40	28	70
68	Northamptonshire...	16	11	68
	Nottinghamshire ...	19	13	68
	Essex	48	32	66
66	Monmouthshire ...	12	8	66
	Sussex	48	32	66
	Cambridgeshire ...	26	17	65
65	Yorkshire (West Riding)	89	58	65
64	Cheshire	53	34	64
	Northumberland ...	25	16	64
	Shropshire	30	19	63
	Lincolnshire ...	45	28	62
62	Norfolk	35	22	62
	Somersetshire ...	29	18	62
	Yorkshire (East Riding)	20	12	60
	Leicestershire ...	24	14	58
	Hertfordshire ...	26	15	57
57	Oxfordshire ...	14	8	57
	Westmorland ...	7	4	57
55	Berkshire	29	16	55
	Middlesex	45	25	55
	Dorsetshire ...	11	6	54
	Buckinghamshire ...	17	9	53
53	Kent	56	30	53
	Surrey	67	36	53
	Lancashire	131	68	51
50	Worcestershire ...	22	11	50
	Channel Islands ...	8	4	50
	Warwickshire ...	43	21	48
	Derbyshire	21	10	47
	Hampshire	46	21	45
	London	125	54	43
	Cumberland ...	26	10	38
	Isle of Man	3	1	33
	Total	1,475	878	

Percentage membership in England 59.

* * * * *

Scotland

County.	Total.	Members, N.V.M.A.	Per-centage.
Banff	7	7	100
Berwick	3	3	100
Clackmannan (Alloa)	1	1	100
Nairn	1	1	100
Linlithgow	5	4	80
Kirkcudbright ...	5	4	80
Dumfrieshire ...	10	8	80
Wigtown	8	6	75
Ross	4	3	75
Stirling	7	5	71
Roxburghshire ...	7	5	71
Aberdeenshire ...	26	18	69
Buteshire	3	2	66
Ayrshire	23	15	65
Forfar	15	9	60
Lanark	56	34	60
Inverness	9	5	55
Argyllshire ...	11	6	54
Renfrewshire ...	11	6	54
Midlothian	35	18	51
Kincardineshire ...	4	2	50
Perthshire	14	7	50
Selkirk	2	1	50
Fifeshire	15	7	46
Elgin (Moray) ...	3	1	33
Peebles	3	1	33
Dumbarton	7	2	27
Caithness	4	1	25
Haddington ...	4	1	25
Orkney and Shetland	5	1	20
Sutherland	1	0	
Kinross	1	0	
Total	310	184	

Percentage membership in Scotland 59.

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Wales

County.	Total.	Members, N.V.M.A.	Per-centage.
Denbighshire ...	15	11	73
Glamorganshire ...	29	21	72
Montgomeryshire ...	9	6	66
Carmarthenshire ...	14	9	64
Carnarvonshire ...	10	6	60
Cardiganshire ...	7	4	57
Flintshire	6	4	57
Brecknockshire ...	2	1	50
Anglesey	7	3	42
Pembrokeshire ...	7	3	42
Merionethshire ...	3	1	33
Total	109	69	

Percentage membership in Wales 63.

* * * * *

North of Ireland

County.	Total.	Members, N.V.M.A.	Per-centage.
Antrim	30	14	46
Armagh	9	6	66
Down	19	6	31
Fermanagh	4	3	75
Londonderry	12	1	8
Tyrone	18	8	21
Total	62	38	

Percentage membership in Northern Ireland 61.

* * * * *

Irish Free State

County.	Total.	Members, N.V.M.A.
Carlow	6	1
Cavan	9	2
Clare	7	2
Cork	46	13
Donegal	7	2
Dublin	40	10
Galway	7	4
Kerry	9	1
Kildare	9	0
Kilkenny	5	0
Leitrim	4	0
Leix	3	1
Limerick	12	0
Longford	3	1
Louth	6	1
Mayo	7	4
Meath	4	1

County.	Total.	Members, N.V.M.A.
Monaghan	8	2
Offaly	5	2
Roscommon	9	0
Sligo	5	2
Tipperary	20	4
Waterford	6	1
Westmeath	8	2
Wexford	10	5
Wicklow	5	1
Total	260	62

Percentage membership in Irish Free State 23·8.

N.V.M.A. MEMBERSHIP: A MAP AND ITS MORAL

We are indebted—and deeply so—to a member of Council, N.V.M.A., of 11 years' experience on the governing body of the Association, for the opportunity of emphasising our editorial arguments of January 30th relative to the value and duty of membership and the lamentably wide scope which exists for its increase, by the publication of the map and tables which precede this note.

Their creator has been good enough to point the moral of the fruits of his laborious and self-imposed task by the observations which follow, and which are prompted by his experience as one who had the privilege of meeting members of the profession in all parts of the country and his consequent conviction that the proportion of practitioners in N.V.M.A. membership is lamentably small.

Our contributor states: "In the hope that the lesson borne on the face of the map and in the accompanying tables may be the more readily impressed upon the minds of your readers, I am constrained to attempt some explanation of the motives which led me to undertake the task of their preparation.

"In the achievement of that greatness of estate which formed the subject of your recent editorial appeal, the possession by the Association of a weekly journal for the profession must be counted an invaluable asset. The N.V.M.A. has long been alive to this, but it has also had continuous occasion to realise that many a practitioner has little time to study contemporary literature, and that what he *does* make opportunity to read must have practical bearing on the many difficult problems with which he is brought in contact during his daily life.

"Since its purchase of the *Veterinary Record* in 1921, then, the Association has striven (through the medium of its Editorial Committee) to obtain material which should be at once informative and interesting. It is unnecessary to say that the publication of a journal, especially a weekly one, is an important and responsible undertaking and if its contents are to be up-to-date and professionally valuable—if it is to be a compendium of British and foreign medicine, surgery, obstetrics, pathology, etc.—the Editor must have at his disposal the wherewithal to obtain such material and the cost of such a publication will be considerably higher than if those in charge are merely content to publish occasional submitted articles and a few letters in the correspondence column. The author believes that the production of a journal of comprehensive content has been the endeavour of the Editorial Committee, but that, for want of adequate facilities, due in large measure to lack of adequate funds, the paper, although it has made rapid strides during the short time which it has been the property of the Association, still suffers from the limitations he has indicated.

"Quite clearly the reply to this is that the membership will have to increase, and in this connection it must be remembered that membership of the N.V.M.A. does not only mean the free receipt of the journal but numerous other advantages of which the average member is quite unaware. The N.V.M.A. is no stranger to criticism, but this is so rarely of a constructive character that one is tempted to surmise that the majority of its critics are unaware of the activities of the N.V.M.A. and of its many Committees. With the greatest good-will in the world I would invite those who disagree with the policy of the N.V.M.A. to visit the offices, to discuss their grievances with their local Member of Council, N.V.M.A., or in some other way make themselves acquainted with the immense amount of work which their members of Council carry out on their behalf at their own expense and at the cost of much valuable time.

"The Association is being recognised more and more by public bodies and Government departments as representative of the profession. This is a profoundly significant fact, and renders it indubitable that material accession to membership (which it is certainly possible to obtain) would increase our influence and power as a profession tenfold, with a corresponding enhancement of the measure in which the interests of its members would be safeguarded. Here I must say that, while it is true that the availability of the services of the Association and its staff is not confined to its members—if a veterinary surgeon non-member seeks assistance in regard to his position with a public body in connection with fees, salary, etc., his request is dealt with—yet it is hardly fair either to the 'National' or to those who are members that the funds supplied by them should be spent in helping those who seek no association with us until they require such assistance. It should be remembered, moreover,

that the activities of the N.V.M.A. are not confined to those at home, but much time and thought are spent in responding to the frequent requests for advice and assistance received from members of the profession in the Colonies.

"In view of the advancement made with a membership of under 50 per cent. of the profession, it is certain that the degree of progress attendant upon 100 per cent. membership would be incalculably great.

"Given the right men to lead us—and with our democratic system of election to Council the matter is in our own hands—I see no reason why our profession should not be the best equipped professionally in the world. But if this is to be achieved dissensions must take no part in our make up and we must pull together: all that will then be required are confidence in our officers and an intelligent interest in our domestic affairs.

"My object in submitting these notes is to increase our membership, and in order to demonstrate plainly how necessary this is, a map has been prepared on which is shown the number of practitioners in any one county, together with the number of these (shown in a triangle or circle) who are members of the N.V.M.A. A cursory glance will suffice to show that too many of our men are apparently not yet aware of the advantages to be obtained by joining our Association. The map is self-explanatory and needs no further reference, other than the intimation that the figures given thereon and in the accompanying tables represent the position of affairs at the time of last year's Congress (August, 1931)."

MILITARY "AXE" IN IRAQ

British Personnel to be Halved

Reuter's Baghdad correspondent reports that, with the admission of Iraq to the League of Nations, steps are now being taken to reduce the number of British military expert advisers who have been serving in this country.

The annual subsidy hitherto paid by Great Britain towards the cost of maintaining a military mission in Iraq—between £60,000 to £70,000—is, it is stated, to be withdrawn forthwith. And, consequently, the services of only eleven of the score or so of British officers employed in various branches and departments of the Iraq fighting machine will be retained.

The officers who will remain are:—the Inspector-General, Inspector-General of Staff, Inspector, Q.M.G. Branch, Inspector of Artillery, Inspector of Cavalry, Inspector of Ordnance, Inspector of Mechanical Transport, Inspector of Staff School, Inspector of Iraq Royal Military College, and two liaison officers.

This means that the British officers to be "axed" include:—Inspector, Adjutant-General's Branch; Inspector, Medical Services; Inspector, Veterinary Services; Inspector, Military Works; Inspector of Signals, and a number of Assistant Inspectors.

The British military forces in Iraq are under the orders of the Air Officer Commanding.

Clinical and Case Reports

HÆMORRHAGIC SEPTICÆMIA IN BOVINES.

Wm. Tweed, m.r.c.v.s., d.v.s.m., Sheffield.

Messrs. V. E. Pratt and T. N. Gold, Redditch, have recently described in your columns an outbreak of disease in a herd of cattle which they consider as being hæmorrhagic septicæmia.

From time to time writers have recorded what they believed to be hæmorrhagic septicæmia in cattle in Britain. Many do not believe that this disease occurs in this country and, as a result, there has been much controversy.

The whole trouble has arisen through faulty and confusing nomenclature, in that *Pasteurella boviseptica* has been called and is unfortunately still called by some *B. septicæmia hæmorrhagicæ*. This name was given to the bacillus by Hueppe as far back as 1886 and the bacterial characteristics on which he based his diagnosis were exceedingly meagre. Much work has been done since then, and Hueppe's nomenclature is quite out of date.

This organism, if very virulent or affecting animals of low resistance, does produce the clinical condition hæmorrhagic septicæmia, and this does occur in certain cases in this country.

The organism is, however, usually of low virulence, belonging, as it does, to Jone's Type 1 of *P. boviseptica*, *i.e.*, the type isolated in this district, with the result that the infection is generally localised in some organ, *e.g.*, the lung, and does not produce such a widespread infection as a septicæmia. That the animal's resistance is an important factor is shown by the fact that although septicæmia is rare amongst adult animals, it is quite common amongst calves. To clear up this confusion it would be better if the type of infection produced by this organism were known as a Pasteurellosis and that the different clinical forms should be distinghished as follows:—

Pasteurella septicæmia for the hæmorrhagic septicæmia condition;

Pasteurella pneumonia for the pneumonic form;

Pasteurella enteritis for the enteric form.

The important thing to remember is that the infecting organism is the same in all, *viz.*, *Pasteurella boviseptica*.

I have, in collaboration with Edington, investigated cases of bovine pneumonia due to *Pasteurella boviseptica* occurring in Sheffield and the surrounding districts, and as some of these cases were also septicæmic in character, it may be of interest to redescribe some of the salient features of *Pasteurella boviseptica* infection as it occurs in this country, with which I have personally met.

Bovine animals of all ages may be affected.

The acute type is usually seen in calves, where lesions of septicæmia with small hæmorrhages in various parts of the body are the characteristic lesions. There is congestion of all the internal organs and dark red areas in the lungs like large blood clots. There are large round or blotchy hæmorrhagic areas on the leaves of the third stomach and acute inflammation of the mucous membrane of the fourth stomach and small intestines. A quantity of pleural and peritoneal fluid may be present and also œdema of the dewlap and between the muscles of the neck. The presence of the petechial hæmorrhages along the jugular furrow beneath the scapula and on the surface of the heart is characteristic of this form, and the *P. boviseptica* can be recovered from the blood.

The more chronic form, which is more often met with, shows very characteristic lesions in the lungs. The lesion takes the form of an acute pneumonia, the apices of the lungs being totally solidified into a deep red mass. A greyish fibrinous deposit adheres to the pleura and the lungs are firmly attached in places to the chest wall and pericardium and there is a quantity of fluid present in the chest cavity. When the lungs are cut the pneumonic areas show a striking picture of consolidated tissue interspersed with thickened septa. The pneumonic areas are clearly demarcated from the non-pneumonic, the latter often appearing in the midst of the deep red consolidated tissue as a pale pink, spongy emphysematous area. Some consolidated areas are also found isolated in healthy lung tissue which are deep red in colour as if a local hæmorrhage had taken place in the lobule and then solidified. If a portion of the hepatised lung is squeezed a large amount of blood-stained fluid can be obtained. In the hepatised areas small greyish areas are usually present. The pericardium is thickened and inflamed and adherent to the lung tissue, and when the heart is removed it leaves, a circular cavity where the solid lungs had moulded themselves round the heart. Numerous petechial hæmorrhages occur over the base of the heart. The liver, spleen and kidneys show some congestion and often reddened areas appear on their external surface. There is inflammation of the leaves of the third stomach with circular or blotchy red areas, some of which may be ulcerated, with perforation of the leaves, and covered by a greyish deposit. Inflammation of the mucous membrane of the fourth stomach and small intestines in varying degree, with ulceration, are fairly common.

Symptoms.—In the acute form death usually takes place quickly from septicæmia and death often occurs in cases where there is extensive consolidation of the lung tissue. Cases showing extensive acute inflammation of the alimentary tract, where colicky pains and diarrhœa were present, usually succumbed to the infection.

In the chronic cases the animal goes off its food for two or three days. The temperature may reach as high as 108° F. The animal has a painful suppressed cough. There is a dirty, often blood-stained, discharge from the nose. The animal is very depressed and grunts on rising or lying down. There is rapid wasting of flesh and the animal gets a tucked-up appearance. The breathing is hurried and shallow. Dull areas and moist bronchial sounds in the chest are present and any movement of the animal causes coughing.

Incidence of the disease.—Outbreaks are fairly common during the winter months in this locality. I am also aware of outbreaks occurring in different parts of the country exhibiting the same history, symptoms and *post-mortem* lesions. In dairy herds the disease, as a rule, commences with a new purchase to the herd infecting the cow stalled adjacent to her and 50 per cent. or more of the animals in the herd may contract the disease. The lung form is usually met with in older cattle and the mortality is often high. In young cattle the disease may also arise from a newly-purchased animal becoming affected first, but on the other hand, as is the case sometimes in outbreaks in older animals, the newly-purchased animal may probably only act as a carrier of infection to the herd, and show no symptoms or suffer from a very mild form of the disease. Outbreaks in young cattle often arise without any new purchases being added to the herd, but conditions such as bad ventilation or overcrowding have often been noted as contributory factors in lowering the animal's resistance.

Treatment.—Isolation of affected animals in well-ventilated boxes should be carried out. The administration of hæmorrhagic septicæmia serum has been found useful, but a serum prepared from Type 1 of *P. boviseptica* and a bacterin prepared from the same organism to protect animals in the same herd are indicated.

. . . . .

K. J. S. Dowland, M.R.C.V.S., Lincoln.

To commence, I do not think that the last word has been said about hæmorrhagic septicæmia in India. These cases are numerous during and after the monsoon. In the winter odd cases occasionally occur, very frequently after a fall of rain. In these outbreaks, as a rule, but one or two of the herd may be affected, whereas in the outbreaks occurring at monsoon time the proportion of animals affected is large.

I had one case, the subjects being a cow and her calf, in which the typical symptoms and course of the disease were shown, occurring in the Palace dairy herd at Jodhpur. This was

a cold weather case. On *post-mortem*, everything was typical, but no ovoid bi-polar germs were to be found anywhere. Surprised, I got a medical bacteriologist to check over my findings. Once again—no Pasteurella.

I am afraid this is only one instance of this very peculiar happening. I was too busy to follow the matter up, but if one can get typical symptoms, course and *post-mortem* findings without the Pasteurella in one case, there is a presumption that such a case will occur again—which seems to point to the conclusion that in India one is dealing with two diseases which greatly resemble each other, but yet are etiologically different.

(By the way, I may remark that a large amount of rinderpest serum is there pumped into herds suffering from hæmorrhagic septicæmia.)

There is no fundamental reason why bovine hæmorrhagic septicæmia should not occur in this country. Fowl cholera does, and so does human plague when once it has been introduced.

I should expect to find hæmorrhagic septicæmia after a long dry spell, when grazing was scarce and the animals were being sent into marshy places to graze—and would have to graze closely even there. I also should not expect to see it assuming the hyper-acute form that it does in other countries.

I also regard the Pasteurella family as the arch deceivers of the microscopic world, and therefore would not base a diagnosis simply on their presence in a blood or other film. I had some very suspicious cases last year in this district, but was unable to demonstrate the Pasteurella. These occurred in the winter, among cattle kept in crew-yards, and I felt inclined to associate them in some way with the consumption of defective barley—in one case the incidence of disease terminated when the barley was changed. In the other only one animal was affected, and there were no further cases, so the fact that the barley was changed cannot be held to prove very much one way or the other in this instance.

* * * * *

THE FRACTURED CANINE FEMUR

H. Stainton, F.R.C.V.S.

In touching the fringe of a wide subject, I shall only attempt to deal with the simple fracture—which may present a problem with the easiest or most difficult solution, according to circumstances.

These circumstances will depend mainly upon:—

(1) Nature and location of fracture;
(2) Accurate diagnosis, possibly assisted by X-ray;
(3) Size, age and breed of dog;
(4) Temperament of dog;
(5) Temperament of owner;
(6) Conditions under which the patient can be nursed.

In my student days I was once shocked by the advice of an old and experienced practitioner who told me to confine a broken femur case in a small kennel and do no more. He said it would be all right in a month—and it was. In the arrogance of youth and inexperience, I regarded this as the lucky chance which, occasionally, favours incompetence.

Nevertheless, modern methods are frequently based on this old principle of "*laissez faire*."

I suppose it is generally accepted that the old fixation method by plaster of Paris is bad treatment and that complete immobilisation only leads to inhibition of nervous, vascular and other functions.

It is also recognised that cats register a high percentage of recovery under conditions of rest without *any* interference.

Approaching the subject in the light of elementary first principles, I would classify the cases which may be presented to the practitioner, as follows:—

(1) Simple fractures which are capable of resolution under conditions of absolute rest, accompanied by careful supervision and massage.
(2) Fractures complicated by displacement and fractures in the larger breeds, which need some definite reduction, support and fixation.
(3) Old or indolent fractures which call for surgery, wiring, pegging or plating.

One learns by failure, and in order to formulate a successful line of treatment, it may be well to analyse the old classical method of complete immobilisation, over a long period, by splints, plaster of Paris, tight bandages, fixation of upper and lower joints, etc.

This blind "setting of the leg" by boxing up the limb in expert and artistic fixings is successful in some cases and, indeed, may be good treatment.

On the other hand, the picturesque fixing may be removed, after two or three weeks, to reveal such failures as angulation, shortening, excessive callus or even suppuration and necrosis arising from neglected primary hæmorrhage and other damage to soft tissues.

In a simple case, for which one prescribes rest with massage, weighted foot, etc., the muscles act as inside splints and will function as such unless hampered by external constraint.

In other cases, displacement is favoured by excessive traction of the muscles according to their various directional function.

Few fractures are unaccompanied either by swelling, œdema, hæmorrhage or muscular traction.

It follows that early X-ray examination is

of great assistance in showing the relative positions of the ends of the fractured femur. Anything approaching apposition will suffice —and it is surprising how displacements, slight impactions and angulations will adjust themselves by proper manipulation and in the absence of over-treatment.

The human surgeon has the advantage of " extension " control. This can be applied, in some measure, to the canine patient by the application of a weighted bracelet above the foot. This will check the dog's tendency to draw up the limb, when standing.

Coming to the second class of fracture, one may suspect displacement—or, in the event of a swollen limb, be unable to form any useful opinion as to the extent of the damage.

Exact knowledge can be obtained by means of the X-ray—but that is not always available at the moment. For instance, an accidentally broken hind leg may be presented late at night and the swelling, hæmorrhage and pain are such as to preclude any possibility of definite regional diagnosis.

In such a case, one can wrap the limb in cotton-wool over which is applied, by light bandaging, a splint of 3-ply cut to the exact shape of leg under slight extension. A suitable sedative, such as morphine, will keep the patient quiet until and while a more exhaustive examination can be made.

Assuming that the difficulties of diagnosis, circumstances, etc., have been overcome and that conditions demand support and fixation, it remains to decide as to the best method which will result in passive strength accompanied by some degree of flexibility. This depends entirely on the skill of the operator in the application of his particular fancy as regards fixing agent.

The usual procedure is to clip the hair short from hock to spine. The patient is then held on the table either by hobbles or assistants, with the injured leg uppermost. If morphine or other sedative has been given overnight, there may be no need for further anæsthesia, in order to keep the limb extended for fixation.

The three simplest and most practical methods are as follows:—

(1) The application from below the hock upwards of a narrow, diagonal and criss-cross bandage, supported by glue or gum compound, melted charge, adhesive tape, Burgess plaster or any of the better known preparations according to choice.

(2) Application of a shaped piece of chamois leather which has been dressed with a layer of melted charge or cobbler's wax. This requires careful manipulation, in that the leather should be carefully shaped in order to prevent wrinkling, the dressing should only be applied to within a quarter of an inch of the margin, and finally, the whole must be applied at a heat sufficient for adherence without burning.

(3) Two carefully cut and shaped splints from thin wood to hold the bandaged leg in extension. These splints must be very light and the inner must be shorter than the outer. The thigh and groin should be well padded in order to obviate chafing. Such splints, secured by light bandage, offer no resistance to a second X-ray examination and can be removed easily for further manual examination.

At this point, the temperamental difficulty may arise, in that some dogs will not tolerate any bandages or splints but will do their utmost to be free of the encumbrance and so retard progress by their efforts to that end.

Finally, we come to the third or surgical class of case. This is the most important, in that it calls for more thought, ingenuity, operative skill and knowledge of regional anatomy than almost any other operation which the veterinary surgeon may undertake.

The man who talks lightly of " wiring " a fractured femur is an example of the supreme optimist or possibly, a bluffer.

I was at a loss to understand my own failures, until I studied the brilliant experiments and work of Ernest Hey Groves.

A wired femur might, occasionally, unite—but the screwed plate appeared to be a hopeless proposition. The screws came adrift and one was left with a useless foreign body with sepsis.

From such failures one learned the postulates of successful operation and I will summarise these, with reference to Groves, as follows:—

(*a*) Accurate replacement and adjustment of the broken ends.

(*b*) Some agent (plate or otherwise) which will maintain firm union and fixation of the damaged ends until repair is complete.

(*c*) Asepsis, so far as possible, and a minimum of interference with the soft tissues.

From these postulates, arise the following practical conclusions:—

(1) Short plates and screws are useless because bone does not hold a screw, like wood, and there is often a breakaway.

(2) A wire coupling seldom keeps the two damaged ends in strict apposition and rigidity. Success in this direction, as applied to the femur, is an

example of nature's recuperative power in spite of clumsy operative interference.

(3) Intramedullary pegs, made of suitable material, are successful in some cases—but difficult in application.

(4) Mechanical efficiency and absolute fixation can be obtained only by long plates and long transfixing pins.

No. 4 is, of course, the kernel of the nut.

In conclusion, it is apparent that I have fulfilled my original intention of merely touching the fringe of a vast subject.

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AN UNUSUAL GESTATION

E. G. Robertson, m.r.c.v.s., d.v.s.m., Wimborne

Subject.—Alsatian bitch, three years old.

History.—The owner first consulted me regarding this bitch in August of last year; she then appeared very heavy and fat. The advisability of having her mated was discussed and it was decided to diet her, give plenty of exercise, and mate her the next "heat."

On November 7th the bitch was mated. On December 10th the owner noted a vaginal discharge, although otherwise the bitch appeared perfectly normal. I was summoned on December 12th. Examination revealed a fœtus in the vagina. I administered a hypodermic injection of hypophysin, and in about half-an-hour two undeveloped pups were passed.

December 14th.—Still discharging. A second injection of hypophysin was given. Another pup passed. As the discharge still persisted, liq. extr. ergotine was prescribed and the discharge ceased in about 3 days. I heard nothing further of the bitch until *January 7th* when, to my surprise, my client rang up in very high spirits to report that the bitch had had nine live and perfectly healthy puppies during the night. An invitation to call and satisfy myself was accepted later.

To my mind this is a most unusual case and also remarkable in that the injection of hypophysin (preparation of pituitrin), together with ergot orally administered, did not bring about the expulsion of the nine puppies, which must have been in the other uterine horn, at the same time that the other three were delivered, on December 12th and 14th.

AMERICAN SCIENTIFIC CONGRESS POSTPONED

The Director-General of the Pan American Union recently announced that word had been received from the Mexican Government that owing to the fact that present world conditions make it impossible for many nations to send special representatives to the sessions of the Seventh American Scientific Congress, which was to have been held in Mexico City, February 5th-19th, 1932, it had been decided to postpone the said Congress until November, 1933.

Abstracts

[Comments on some Recent Excursions in Therapeusis. Horder, Sir Thomas (Presidential Address to the Harveian Society of London, January 14th, 1932). *Lancet.* No. 5656. Vol. ccxxii. January 23rd, 1932.]

Omitting "cults" by which therapeusis is "cribb'd, cabined and confined," the author glances informatively at some of the more recent tendencies which have shown themselves in the modern treatment of disease. Much as he would wish to treat of surgery, which neither as to craft nor field has reached its zenith (though some hold the former to be the case), time limits his observations to the development of irradiation therapy and the present position with regard to immuno-therapy.

The present tendency to discount the value of X-rays for purposes of treatment and to confine their usefulness to the field of diagnosis seems unfortunate, inasmuch as exploration of the possibilities of X-ray therapy had only just begun at the time when radium therapy overtook the older method in popularity. Improvements in technique have only recently set the stage for accurate observations of the therapeutic value of X-rays, and the practitioner should familiarise himself with the merits of both at the hands of the specialist, since he is more and more likely to be called upon to exercise his own judgment as to which is the better calculated to attain the result desired. In human (as in veterinary) medicine a great deal more experience is required before even the experts are agreed as to the dosage, the frequency and the field of irradiation in the case both of radium and X-rays.

In the treatment of microbic infections, the past 30 years have witnessed both great disappointments and stimulating successes in the immunological field. The introduction of exotoxin-serum therapy, in particular, has yielded results which afford ground for belief that some of the bold claims which accompanied the introduction of the passive immunity method of combating disease may be proved justified. Antigen therapy is still largely non-specific, but it would be foolish to suppose that we have seen the limits of the method of active immunisation. Concerning chemotherapy, the success of 606 gave a general stimulus to the use of germicidal preparations in pyogenic infections. Mercurochrome is perhaps the nearest approach to an ideal blood antiseptic that we possess, but the danger of possible permanent damage to the kidney must ever be borne in mind.

Truth as to specificity in the therapeusis of microbic infections may well be found to lie between the two extremes of specificity and non-specificity—"but since we are dealing always

with an organism which possesses defences of its own, it behoves us to be careful that our reputed remedies do not merely add to the load the patient has to carry, and thus put a drag upon his natural resistance to his disease." It is important that the physiologist should come to the rescue of the physician.

W. B.

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[**Meningitis due to** *B. anthracis* (Dunscombe, W. K. *British Medical Journal.* January 30th, 1932, p. 189.]

The symptoms so closely resembled cerebro-spinal fever that the patient was sent to the isolation hospital, Shanghai, of the Medical Laboratory of which the author is Director. Laboratory examination of a swab from incision of a sore at the base of the right index finger disclosed staphylococci only, but cerebral symptoms gained such intensity that the patient was transferred from the Police Hospital to the Chinese Isolation Hospital. Delirium, limb twitchings and rigidity of the neck were observed. Anti-anthrax serum was given, but death ensued within a week of admission to the first hospital.

Lumbar puncture of fluid culture and guinea-pig inoculation proved the presence of *B. anthracis.*

W. B.

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[**Instantaneous Electric Stunning of Animals at Slaughterhouses and Observations regarding the Use of Electrical Narcosis for Operations.** Müller, *Tierärztl. Rdsch,* xxxvii, 619-621.]

This paper has been written largely with a view of disproving Junak's assertion (*Vossische Zeitung,* July 5th, 1931) that "electrically stunned cattle are in no way narcotized." Whereas old methods of stunning by means of a pole-axe or by the captive bolt pistol produced an irreparable destruction of the cerebrum—the seat of consciousness—the electric stunning only interrupts the activity of the brain. The complete loss of consciousness that follows the electric method of stunning is a proof that animals do not react to painful impulses. An animal stunned in such a manner is bled without showing the least sign of pain or convulsive "death struggle" movements. If not bled, the animals regain consciousness in a few minutes, raise their head, change from the lateral into the abdominal position, and get up showing no untoward sequelæ. This method of stunning has been rejected by the Jews alone on ritual grounds.

The apparatus used for the stunning of pigs consists of tongs, the branches of which carry electrodes dipped in an electrolytic salt solution and have a button switch. The electrodes are placed behind the ears, and, when the current it switched on, the animal falls down and is bled immediately afterwards. More than 500,000 pigs have been stunned in such a manner during the past two years at the Munich abattoir, and the apparatus has been already installed in more than 150 large and small slaughterhouses in Germany.

The author points out that this method of electro-narcosis may be used with success for castrating old boars and for umbilical hernia.

H. F.

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[**Epidural Anæsthesia and the Removal of the Retained Placenta.** (Trans-title.) Rudin, K. E. *Svensk. Vet.-tidskr.* 1931. 5. 176-183.]

The writer reviews some of the articles previously published, especially in Swedish, on epidural anæsthesia in cattle. For the removal of the after-birth he injects 10 c.c. of a 1 per cent. solution of tutocain by one of the usual routes and claims the following advantages for the procedure: (*a*) it conserves the patient's strength; (*b*) the results are better since the whole of the after-birth can be removed; (*c*) outside contamination is reduced to a minimum; (*d*) a minimum of help is required and an economy in time and clothes is effected.

G. B. B.

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[**Percain—A New Local Anæsthetic for Veterinary Surgery.** Professor Pardubsky. *Prag. Arch. f. Tiermed,* 1931. Vol. ii, No. 7. **On Local Anæsthesia with Percain in the Horse.** Dr. Srnetz. *ibid.* No. 8.]

Both these papers originate from the surgical clinic of the Veterinary College of Brno, Czechoslovakia. Percain has been under trial for two years and the experience gained therefrom is here presented in general terms. To put it briefly, percain marks a great advance in local anæsthetics; it is cheaper than, it is as effective as any of the common local anæsthetics and has a very prolonged action, which may extend to ten hours or even twice as long according to the dose and method of application. It is practically non-toxic and large volumes of percain in solution can be given with safety.

Pardubsky gives a review of veterinary papers concerning the use of percain and then describes his own work with it. It is suitable for all methods of application—surface (conjunctiva and other mucous surfaces), infiltration (as for surface operations) and for regional anæsthesia (nerve blocking). In percain we now possess a means of rendering painful wounds painless and thus eliminating the nuisance of animals, especially dogs, disturbing wound dressings, and also of removing the necessity in some cases of having to apply a dressing at all.

"Percain-Ciba," to give it its full name, is made by the Firma Ciba, Prague. It is the

choralhydrate of "Butyloxycinchoninsäure-Diäthyläthylendiamide" and is sold as a white powder or as a solution: it is usually employed in solution of one or two parts per thousand.

Srnetz, in the second paper, describes the use of percain in epidural anæsthesia and regional anæsthesia of the head in the horse, for which former purpose it is best used in a two per thousand solution. Weaker solutions cause motor paralysis before anæsthesia, but, in the above concentration up to 30 c.c. can be given to procure anæsthesia of the pelvic organs and perineum in the standing animal. Cattle presumably react similarly.

J. T. E.

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[Report of the Abortus Commission of the Society of Swiss Veterinary Surgeons at the Federal Veterinary Office at Bern. *Schweiz. Archiv. f. Tierhlk.* 1931. Vol. 73, pp. 529-536.]

This commission was formed in 1925 for the purpose of determining the extent of bovine contagious abortion in Switzerland and this report includes the statements of five diagnostic institutes, which have compiled statistics from every canton. The following points were inquired into:—the number of infected farms; the mode of infection of the cases diagnosed; the relative efficiency of bacteriological and blood agglutination tests, and the results of different methods of treatment, *e.g.*—the use of live and of dead vaccines, of carbolic acid injections, of other chemical and biological products and of no active treatment at all.

The results of all these investigations are set out in tabular form and require to be studied by anyone wishing to draw conclusions. They can be summarised in a general way thus—bovine contagious abortion is widespread in Switzerland; the agglutination test is a suitable one for diagnosing the disease in a farm; in freshly infected farms as many as three-quarters of the breeding stock may abort and in farms infected for a long time about one quarter abort; the use of live vaccines in any but infected premises is condemned; the results of the different treatments are all much alike: even the cases not treated at all behaved similarly to those treated by one or other method. It is of interest to note that *B. abortus* infection was diagnosed in swine, poultry and in man on a few occasions. Twenty-six cases in humans were diagnosed in 1930.

This work was made possible by the combined support accorded by stock owners and veterinarians to the commission and, although not covering every herd or farm, has given considerable important information to those concerned with the ultimate object of eradicating the disease from the country.

J. T. E.

ROYAL COLLEGE OF VETERINARY SURGEONS

Special Meetings of Council

A Special Meeting of Council was held at 10, Red Lion Square, W.C.1, on Friday, January 8th, 1932, following the Quarterly Meeting reported in our issue of last week. Mr. G. P. Male (President) again occupied the chair, and the same members were present.

The minutes of the previous special meeting were taken as read and signed as correct.

Alteration of Bye-law 62

The President: Dr. Share-Jones has a motion to amend Bye-law 62 by the omission of the words "(exclusive of Veterinary Science)" in line 11.

Professor J. Share-Jones: There is no need for me to trouble the Council at length to-day in dealing with the motion of which I gave notice at the last meeting, for I have spoken of it on several occasions. Judging from the vote of the Council at the last meeting, there would have been no need to trouble the Council with it to-day, but for the fact that this formality had to be complied with. The tenor of the motion is to remove genuine hardship to which veterinary students at the present moment are subjected. I have no doubt that that hardship is unintentional, but similarly there is no doubt as to the existence of the hardship that is inflicted on a student who comes to a university and registers from the outset as a veterinary student. It is true that anyone can evade the bye-law as it stands, and its evasion is simply and purely a matter of registration. That is what the wise student would do to-day if he cared to look into the requirements of this College and the processes of registration at a university. If he cared to evade it, all he need do would be to go to the university and seek registration as a medical student, or as a student of pure science; pay his fees, attend the courses of instruction in these subjects, and pass his examination for his First M.B. That student would get, as a result of passing that examination, if he cared to pursue it a little further—and he could also secure his first examination for a degree in pure science—the right to come here under the bye-law as it stands and secure exemption from the First Examination for the M.R.C.V.S. That is what any wise student would do.

If, however, students do this, there are two things that might happen. One assuredly would happen, and that is that the fees that such a student would pay during his first year's course in the university would not be placed to the benefit of veterinary education at all: they would be placed to the benefit of medical education or of education in pure science,

depending entirely upon the form of registration which he had pursued.

There is another disadvantage, and this is a real one too. Some students take this course: go and register as medical students at the outset of their careers. They have a genuine intention to be veterinary students, but some do not come back. Having gone into the first year's course for one of these other degrees, they develop a liking for the subject, and so there they remain. If you look at it, the regulation as it stands is a real hardship—inflicted unintentionally, I agree—on the student who would honestly say at the outset of his career: "I intend to be a veterinary student, ultimately a veterinary surgeon, and I intend that my fees shall be called upon for the benefit of veterinary education."

I will not trouble you with any more remarks at present, but I move formally, and I believe from the attitude of the Council at the last meeting that the motion will be accepted. We are not conferring any benefit upon anyone that is not already conferred upon students reading in other faculties.

Lieut.-Colonel Brittlebank seconded the motion, which was then announced open for discussion.

Sir J. M'Fadyean: I rise, not to make a speech, but to ask a question. What I am not quite clear about is: how the examination in the subjects mentioned in this bye-law, to which those veterinary students have transferred themselves, compares with the examination to which students who have not so transferred themselves are subjected, and if the two examinations are identical. I barred myself from making a speech, but I want to explain. I think that Dr. Share-Jones was wrong in saying that the omission was accidental. It was the uncertainty with regard to this very question that led to the insertion of the words that Dr. Share-Jones now desires to remove. We thought that the degree of a British university in any subject carried with it a certain guarantee that we should be quite safe in accepting. That is to say, I do not think that we should have any reasonable ground for doubting the standard of examination in these subjects to which students are still subjected in the University of Liverpool. We have no such guarantee at the present moment. If there are what might be called reassuring circumstances, they have not been told to us. It is pointed out that the examination of university students—veterinary students of Liverpool University—is open to our oversight; that we have access to it. No such access exists in this particular case.

Professor Share-Jones (to the President): Do you wish me to reply now, or at the end?

The President: Do you wish to reply to the question, and to reserve your reply to the discussion?

Professor S. H. Gaiger: I should be glad if Professor Share-Jones would reply now. I want to bear out what I think he is going to say, in my comments.

Professor Share-Jones: I do not want five or six discussions.

The President: If you answer, you have the right to reply to the discussion.

Professor Share-Jones: I thought that I was rather charitable in the way in which I described that hardship as an accidental one. I used the word "accidental" intentionally, with the object of being charitable to those who might possibly have made a slight mistake. I have told Council quite clearly how, by the formal process of registration, a candidate can evade the bye-law. Now, before coming here to move this motion, I put this matter before the University Senate. Does Sir John M'Fadyean suggest to me that there is any university in the British Isles which will give an easier examination for a degree to a veterinary student in, say, chemistry or physics, or botany, or zoology, than it would give to a medical student, or to an arts student, or to a student in science, any one of which branches has ten times the power on Senate that we have—that we could possibly have? The student is most jealously safeguarded by Senate in regard to all the degrees. I put this to the University Senate before coming here, saying that I intended that these veterinary students should be placed on the same footing as medical students, and the Senate approved. That means absolutely, that, in the opinion of the Senate, the standard is the same. It is the standard which is demanded by the university: they take the courses in these subjects with the other students.

Sir J. M'Fadyean: They take the examination with them?

Professor Share-Jones: Yes.

Sir J. M'Fadyean: The same papers?

Professor Share-Jones: In a number of them. I will not say that alterations have not occurred, but recently they were absolutely identical. I will, however, stand by this: if the candidate passed the first B.V.Sc. and cared to transfer to the faculty of medicine, he would be given exemption from the first M.B. There is no shadow of doubt that they would consider the standard precisely the same.

Professor Gaiger: It gives me great pleasure to bear out my colleague in every particular. There is no question that the examinations are of precisely the same standard, and, far from the case being a hypothetical one, there was a veterinary student who passed his B.V.Sc. and transferred to medicine last year, and was given the credit for it as having passed the first M.B. in that subject. The papers are identical.

In fact, they are labelled "Chemistry and Physics . . ." in these two degrees, and the candidates sit together. Any veterinary student in Liverpool University who has passed in these subjects for his veterinary degree can enter any other faculty and get credit for them. There is no question about the standard being the same.

There is only one suggestion that I should like to make. Of course, we cannot amend this motion, but as we as a Council are dealing with an outside body as regards bye-law 62, I think that we should charge a fee. Liverpool University charges a fee to students coming in from what are outside bodies to them, and they give these concessions on payment of the required fee. Those are the words that they use, and I think it would be a useful thing for us to add in some way to bye-law 62 those words. It would be a source of income to some extent.

Professor Share-Jones: I suggest, if I may, on a point of order, that that need not arise now. If that question does arise in regard to a veterinary student, we ought to insist that it shall arise in regard to a medical student, an arts student, or a student of pure science. If it were accepted with regard to veterinary students alone, it would undermine the whole of my point with regard to equity being meted out to veterinary students.

Professor Gaiger: May I suggest that we cannot amend this motion, but that I am merely drawing attention to the fact in order that it may be incorporated in some future motion?

The President: The question does not arise at the moment; that will be the subject of a future motion.

Professor Buxton: I think that probably I should not have been tempted to take part in this discussion, had it not been for the fact that so far the speakers have confined their remarks to one particular educational centre, and have referred to questions of standard.

Professor Share-Jones: May I rise here to a point of order? I do not intend this to apply only to the University of Liverpool, and I have been very careful to avoid that suggestion throughout. It applies to any veterinary student of any university.

Professor Buxton: Exactly, but as Dr. Share-Jones quoted instances relevant to Liverpool and not other places, he confirms my suspicion that he was referring to Liverpool. That, however, is by-the-by. The point to which I should like to draw the attention of the Council is that there are one or two very important words. Those are: "Examination to be approved by the Council." I think I may remind you that therein lies our safeguard in this direction. I have very fresh in my mind still the points that were raised when these words "exclusive of veterinary science" were inserted in the bye-law. So far as I am concerned I have no very definite opinions one way or the other, but there is just one little point, and that is, that the exclusion of students of veterinary science does appear to be a little anomalous. It may not be so in our sight, knowing of the circumstances as we do, but of course it does appear a little anomalous in the eyes of outsiders. I should like to reiterate that I have no definite feeling one way or the other.

Dr. O. Charnock Bradley: It is rather a matter of surprise to me that there should be any discussion on this point. Perhaps one should say at the outset that from one's experience and knowledge of veterinary science degrees—which are extensive in Edinburgh—there must be no point now in the inclusion of the words "exclusive of veterinary science" in the bye-law. We ought to bear in mind the fact that, since the bye-law was originally drafted and those words included, there has been a very material and fundamental alteration in that bye-law, which now permits students, and not only graduates, to take the benefit of bye-law 62. It was previously limited in its application to graduates pure and simple. I should say, then, from my experience of the working of the bye-law and of the type of examinations for science degrees in veterinary science, that at present, after mature consideration, I can see no real end served by the continuance of the words "exclusive of veterinary science."

Mr. A. W. Whitehouse: I have some memory of the debate when this clause was put in. It seems to me, if I am not mistaken, that the reason why veterinary science students are excluded was to ensure that there might be some patronage of the Veterinary College department in chemistry and biology. A fear was expressed that if the veterinary colleges kept them the universities would have comparatively few students attending these courses. I think that argument has gone by. That was an argument, I am tolerably certain, at the time the clause was adopted; at the present moment—speaking for myself—we have no room for the number of budding chemists and biologists infesting our place, and we should be only too glad to have them going to a university to get their instruction in these subjects. I am therefore heartily in support of Professor Share-Jones's motion.

The President: Does any other member wish to speak on this motion? (To Professor Share-Jones): Do you wish to speak any more?

Professor Share-Jones: Only to thank the members who have spoken. I should like to point out one thing in regard to the bye-law as it stands. It is simply repeating the extraordinary position of certain candidates which exists to-day. It is a strong reply to my friend Sir John M'Fadyean. That is: that a candidate coming here with a degree of B.A. who has

taken no physics at all from any standard and has taken no botany in addition, or no zoology, can come here and obtain his exemption from Class A—and he does.

The President now put the motion to the meeting, when it was carried unanimously.

Date of Confirmatory Meeting.—The meeting agreed that the Confirmatory Meeting be held on January 20th, at 2.30.

The Special Meeting then terminated.

* * * * *

A Special Meeting of Council, R.C.V.S., was held at the College, 10, Red Lion Square, London, W.C.1, on Wednesday, January 20th, 1932, when there were present Mr. G. P. Male (President) in the chair, Mr. G. H. Livesey, Mr. J. W. McIntosh, Professor J. Macqueen, Dr. J. Share-Jones, Dr. A. Leslie Sheather, Mr. J. Willett and Professor G. H. Wooldridge.

The minutes of the previous Special Meeting, held on January 8th, 1932, were read and signed as correct.

Letters of apology for absence were received from Major J. Abson, Dr. O. Charnock Bradley, Professor J. B. Buxton, Professor S. H. Gaiger, Messrs. J. Holroyd, R. Hughes, G. H. Locke, Sir John M'Fadyean, Mr. W. Nairn, Major D. S. Rabagliati, Lieut.-Colonel P. J. Simpson, Captain R. Simpson, Mr. Trevor F. Spencer, Major A. Spreull, Colonel G. K. Walker and Dr. A. W. Whitehouse.

Bye-Law 62

Dr. Share-Jones formally moved that the alteration to Bye-law 62 adopted at the previous Special Meeting be confirmed, namely, that the words "(exclusive of veterinary science)" be deleted from line 11. The motion was seconded by Professor Wooldridge and carried unanimously.

It was resolved that the Seal of the College be attached to the Bye-law as amended.

UNIVERSITY OF LONDON LECTURES IN VETERINARY SCIENCE

Under the auspices of the University of London, two advanced lectures on "Diseases of Birds due to Filterable Viruses," will be given at the Royal Veterinary College by Mr. T. M. Doyle, F.R.C.V.S., D.V.S.M. (of the Ministry of Agriculture and Fisheries Veterinary Laboratory, New Haw) at 5.30 p.m. on Fridays, February 19th and 26th. At the first lecture the chair will be taken by Sir Edward Brown, LL.D., F.L.S., while at the second, Major-General Sir John Moore, K.C.M.G., C.B., F.R.C.V.S., will preside. The lectures, which will be illustrated with lantern slides, are addressed to students of the University and to others interested in the subject. Admission free, without ticket.

* * * * *

About one person in 20,000 receiving horse serum develops alarming symptoms of allergic reaction and about one in 50,000 dies. Bronfenbrenner, of the Washington University, has devised a chemical means of treatment of horse serum which, it is believed, will entirely eliminate this unfavourable reaction.

VICTORIA VETERINARY BENEVOLENT FUND

A meeting of the Victoria Veterinary Benevolent Fund was held at the Royal College of Veterinary Surgeons, 10, Red Lion Square, London, W.C.1, on Wednesday, January 6th, 1932

There were present Lieut.-Colonel J. W. Brittlebank (President) in the chair, Dr. O. Charnock Bradley, Professor J. B. Buxton, Professor J. F. Craig, Major G. W. Dunkin, Mr. G. H. Locke, Major-General Sir John Moore, Lieut.-Colonel P. J. Simpson, Mr. Arnold Spicer, Captain S. Villar, Mr. John Willett and Lieut.-Colonel T. Dunlop Young.

The minutes of the previous meeting, having been published in the *Veterinary Record,* were taken as read and signed as correct.

Letters apologising for absence were received from Captain Dawes, Mr. Gofton, Mr. McIntosh, Mr. Rider, Major C. W. Townsend, Mr. Woods and Mr. Jackson Young.

Secretary's Report

The Secretary submitted the following report which was unanimously approved:—

Since the previous Quarterly Meeting, the following donations and new subscriptions have been received:—

Donations

	£	s.	d.
The Mess Committee, Veterinary Department, Khartoum	137	16	4
North of England V.M.A.	30	5	0
Major P. B. Riley (Life Membership)	10	10	0
Arnold Spicer	3	3	0
Mrs. Rabagliati	2	2	0
J. Facer	1	1	0
Mrs. Whicher	1	0	0
R. Eaglesham	0	10	6
	£186	7	10

Collecting Boxes:—

Divisions of N.V.M.A.:—

	£	s.	d.
Royal Counties	3	16	0
Mid-West and South Wales ...	3	15	6
Western Counties	3	15	6
Yorkshire	2	10	0
Derbyshire	1	9	0
Central	0	16	9
Southern Counties	0	16	1
North of Scotland	0	15	3
North Wales	0	12	0
A. Whicher	3	3	6
J. L. Cormack	3	0	0
W. Jackson Young	2	4	8
J. H. Thomson	1	16	2
Captain H. Gillmor	1	11	6
S. H. Slocock	1	1	0
J. W. M. Hinton	0	13	6
J. Wright Conchie	0	12	3
Royal (Dick) Veterinary College ...	0	8	5
H. Taylor	0	3	6
	£33	0	7

Special Christmas Contributions:—

	£	s.	d.
North of England Division (per Mrs. Elphick)	10	10	0
Leonard S. Balls	10	10	0
J. W. Brittlebank	2	2	0
Mrs. Wooldridge	2	2	0
A. J. Beeson	1	0	0
Captain S. Villar	1	0	0
A. Whicher	1	0	0
	£28	4	0

New or Special Subscriptions:—

	£	s.	d.
National Veterinary Benevolent and Mutual Defence Society ...	6	0	0
W. P. Blount	1	1	0
E. Clark (increase)	1	1	0
H. B. Collet	1	1	0
F. Leeds Gooch (special)	1	0	0
	£10	3	0

In the list given above will be noticed a donation of £137 16s. 4d. from the Mess Committee of the Veterinary Department, Sudan. This amount represents a proportion of the sum realised on disbanding the mess, which, by the decision of the Mess Committee, has been credited to the account of the Fund. The cordial thanks of the Council are due to the President and members of the Mess Committee for their generous thought for the Fund.

The other large donation, namely, £30 5s. from the North of England V.M.A., represents the proceeds of an American Tea and sale of various commodities organised by Mrs. Blackburn, wife of the President of the Division, and held at her house. Again the most sincere thanks of the Council are due to Mrs. Blackburn and the ladies of the Division who helped her. This sum brings up the special contributions from ladies of the North of England Division during the past three years to over £100, a very welcome addition to our resources.

Once again, by the sympathetic help of a few generous donors, the Fund has been able to send special Christmas gifts to the amount of £28 4s. to 16 of the recipients, choice being made of those who have a family of small children, or are themselves very aged. The grants received for this purpose from the North of England Division were the proceeds of an afternoon party organised at the house of Mrs. H. S. Elphick, and on her suggestion, gifts of two guineas each were sent to three recipients residing in the North of England.

Owing to the increased demands on the current account of the Fund during the past year, Colonel Simpson very generously agreed to the sum of £98 0s. 6d., being the amount realised by the performance of "The Happy Ending," being transferred to the Subscriptions Account, and so made available for monthly grants.

Life Membership.—Major P. B. Riley was elected a life member of the Fund.

Cases

23. Widow, aged 58, two sons (20, 21).—No permanent income. Takes in boarders during the summer. Is partially blind. It was resolved to continue the grant of 10s. per week, the Secretary being instructed to report again on this case at the next meeting.

90. Widow, aged 31, two children (12, 10).—Earns 32s. 6d. per week and receives £3 per month from relatives.—The present grant was reduced from £2 3s. 4d. per month, to £1 per month.

92. Daughter of member, aged 54.—Suffers from goitre. Earns 10s. per week, but is losing her place as companion help. It was agreed to continue the grant of 10s. per week for the present quarter, the case to be reconsidered at the next meeting.

104. Widow, aged 49.—Late husband's mother living with her (aged 82). Has just qualified as midwife (C.M.B.) and asks for continuance of grant until she begins to earn. It was decided to continue the grant of £1 per week for the present quarter.

105. Widow, aged 44.—Four children (15, 13, 9 and 6) two in orphanage. Mother aged 66, living with her. Rent 30s. per week, but some rooms let off. Eldest son allows mother 7s. a week. The grant of £1 per week was reduced to 10s. per week.

132. Wife of member.—Husband ill and out of work. In arrears with rent. Applies for grant of £7 10s. Special Christmas grant given of £3 3s. It was resolved "That the action of the Executive Committee be approved but that owing to the present state of the Funds no further grant is possible."

144. Daughter of member, aged 43.—Separated from husband from whom she receives £2 a week. Two children, ages 15 and 8. Suffers from rheumatoid arthritis; under hospital treatment. Applies for assistance until elder child can earn her living. It was agreed to make a grant of £1 per month for the present quarter.

146. Daughter of member, aged 76.—Died December 20th. Was receiving grant of £1 per week. A special grant of £4 was made by the Executive Committee towards the funeral expenses. The action of the Executive Committee was approved.

154. Widow, aged 75.—Only income, Old Age pension, and our grant of 10s. per week. This case was referred to the National Veterinary Benevolent and Mutual Defence Society for their kind consideration.

156. Widow, aged 46.—Two sons, one unemployed, the other on Training Ship. Grants made by Executive Committee during past quarter amount to £32 14s. and rent £12 10s. Received from N.V.B.M.D. Society £6. Applicant suffers from incurable disease. It was resolved "That the action of the Executive Committee be approved and that the thanks of the Council be conveyed to the N.V.B.M.D. Society for their assistance." It was further resolved that a grant of £1 per week be made for the month of January but that no further assistance be given in this case.

Investment of Donations.—It was resolved that the question of the investment of donations be left in the hands of the Treasurer.

N.V.M.A. Divisional Report

CENTRAL VETERINARY SOCIETY*

Interesting Cases Described at Red Lion Square

A meeting of the Central Division, N.V.M.A. was held at 10, Red Lion Square, W.C.1, on Thursday, January 14th, with the President, Major W. Hamilton Kirk, in the chair.

The following also signed the attendance book:—Capt. L. S. Balls, Capt. G. N. Bushman, Major W. Denington, Capt. H. S. Dunn, Mr. H. W. Griffiths, Mr. S. Gourley, Mr. J. W. Holmes, Capt. P. S. Howard, Mr. D. Johnstone, Mr. H. D. Jones, Mr. Herbert King, Mr. H. C. P. King, Major Glyn Lloyd, Mr. J. W. McIntosh, Professor J. Macqueen, Capt. G. Dunlop-Martin, Mr. W. Perryman, Dr. A. L. Sheather, Miss K. W. Shedlock, Capt. A. Spicer, Major R. H. Stalker, Mr. J. Stewart, Major F. J. Taylor, Mr. A. S. Watson, Mr. F. W. Willett, Mr. R. A. Willett, Mr. J. D. Williams, Professor G. H. Wooldridge, Professor J. G. Wright and Mr. J. F. Macdonald (Hon. Secretary).

Several visitors were present, including Mr. J. J. Davies, Mr. R. C. Holmes, Major J. Mullany, Major G. E. Oxspring, Major A. A. Pryer, Major F. R. Roche-Kelly and Mr. W. C. C. Taylor.

The Minutes of the December Meeting of the Society, which had been published in the *Veterinary Record*, were taken as read and were confirmed and signed.

Correspondence.—Apologies for absence from Lieut.-Col. E. C. Argyle, Capt. S. J. Motton, Sir John Moore, Mr. H. E. Bywater, Capt. R. J. Stow (who is laid up with lumbago), Major R. T. Smith, Capt. W. K. Townson, and Major R. E. Montgomery (who is away on tour on foreign service). Letters from the National Horse Association, and from the National V.M.A., dated January 6th, January 8th and January 12th.

National Horse Association.—Mr. J. W. McIntosh proposed and Major Taylor seconded the re-election of Mr. W. Perryman to represent the Central Veterinary Society. Mr. Perryman said he would be pleased to serve and that it had been a pleasure to attend the meetings, because it was a body that was doing excellent work. The President said that the Society were under a debt of gratitude to Mr. Perryman for his services.

Poor People's Clinics.—On the proposition of Professor Wooldridge, which was duly seconded, it was resolved to appoint a Committee to investigate schemes which would suit the various parts of London and the Central Society in particular. It was agreed that the Committee should consist of Mr. F. Willett, Mr. H. E. Bywater, Mr. A. S. Watson, Professor J. G. Wright, Capt. L. S. Balls, and the President and Secretary as *ex officio* members.

* Received for publication January 28th.

Visitors.—The President said he would like to call attention to the fact that they had three distinguished visitors from the Royal Army Veterinary School, Aldershot—Major F. Roche-Kelly, Major G. E. Oxspring and Major Pryer. Major Pryer was a very well known worker in veterinary radiology, as also was one of his friends, and it was hoped that they would enter into the discussion.

Reporting.—In response to an inquiry by Major Taylor as to Mr. Brown ceasing to report the meetings, Professor Wooldridge stated that, owing to the reconstruction of duties at the "National," it was not possible at the present time for Mr. Brown to undertake extra duties outside. Mr. McIntosh said this was to be regretted and expressed appreciation of Mr. Brown's services in the past.

Morbid Specimens and Cases of Interest

Mr. H. C. P. King recounted two rather curious accident cases. The first was the extraction of a shaft from the off side of the neck of a horse, the result of a collision with a motor. The end went in about midway down the neck above the jugular furrow and came out in the centre of the mane. It apparently did no very extensive damage, but it was impossible to remove it standing; the animal was cast and chloroformed but it was impossible to remove it until it was driven out with a hammer. The animal remained in hospital for five weeks but was now at work. The second case was that of a horse that was knocked over by a heavy lorry. He (Mr. King) produced the off hind foot. The inner side of the heel of the off hind shoe was broken right off and was driven into the centre of the frog. It was impossible to extract it standing; the pedal bone was smashed into several pieces and the hoof was torn with the exception of two inches on the toe on the upper side; the whole of the rest of the hoof was severed with its attachments. The interesting fact about the case was that the shoe, which was a feather edge shoe and apparently a newish shoe, although it had been freed by the impact, was driven right into the centre of the cleft of the frog.

Capt. A. Spicer produced some worms taken from a dog's heart. He said that the dog had come from China into his quarantine kennels and had been there for about three months. The dog died fairly suddenly one night, having been ill for a little while; the heart was a little enlarged and rather pale in colour and there were a considerable number of yellow spots all over it. Captain Spicer also produced a portion of a bowel of a dog. The history of the case was that the dog was taken ill in August away down in Sussex and apparently made a complete recovery. About October 30th it was taken ill again and kept being sick, having bad periods and apparently getting well. That went on and it was brought to him

again on December 23rd. As a foreign body could be felt, an X-ray was taken and the dog was operated on the next day. The piece of bowel exhibited was removed. It was rather a curious case, because the piece of bone must have got into the stomach in August or October, and gradually worked along the stomach until it was stopped at that particular point. He had not taken the piece of bone out of the bowel, but it had now become absolutely soft and elastic. The question was, how long it had been travelling down the bowel? The X-ray photograph was also exhibited.

The President exhibited a cancer removed from a cat which he had destroyed. It was rather a curious case which had been referred to recently in the *Record*. It was quite easy to feel through the abdominal wall, but the cat being an extremely emaciated animal, a little on the old side, it was useless to try to do anything. Tracing the bowel along it suddenly opened up into a great thick-walled cavern wherein the bowel tissue had become obliterated. From this cavity the ileum emerged, as normal intestine, to the ileo-cæcal valve at the other end. The specimen had been sent to Mr. Innes, of Cambridge, who reported that it was a sarcoma. The President said there was not a great deal of interest in the case except that the metastatic lesions were in the kidney, and in no other organ, a circumstance which had struck the pathologist as unusual.

Dr. Sheather said that he had had three exactly parallel cases of sarcoma of the terminal portion of the small intestine. In one case it involved the cæcum, and in one case there were metastatic lesions in the kidney and in another case metastatic lesions in both lungs.

Mr. R. C. Holmes, a visitor, produced two exhibits taken from a cat, two kidneys and a mesenteric gland. The most interesting was a growth about two inches long inserted in the bowel which was rather a good case of tuberculosis. The other case was the liver of a cat killed that day which had dropsy, but a definite diagnosis had not been made. The kidney was a tremendous size and he would be pleased to pass the exhibits round if anyone would like to see them.

Major Taylor, referring again to Mr. King's specimen, suggested that the shoe had been broken some considerable time before the accident. Mr. King enquired whether this was because of the rust. Major Taylor said that was so, and Mr. King explained that it had been soaked in chlorinated lime for about three weeks, which would account for the rust. He added that if it had been broken, it would have been lost, because there were no nails in the broken part of the shoe.

Mr. W. Perryman observed that he had had the good fortune to see the animal into which the shaft had been driven, referred to by Mr. King. When he saw it, the animal was nearly well and the amount of injury was practically *nil*, but it was surprising that such a huge piece of wood should go through the tissues and escape any vital part. All foot injuries were interesting and Mr. King's second case showed a good deal of fracture of the horn itself. He had seen several cases where there had been fracture, not only of the pedal bone but of the navicular bone, broken in two by a wheel having gone over the foot, and there was apparently no external evidence. It was necessary in cases of injury of that kind to be careful as to future prognosis, because it frequently happened that permanent lameness resulted. Mr. King's case was doubtless a case for killing at once, but it was remarkable that Mr. King should get two injuries like that, especially the larger one. The case of the shaft had ended very happily because he had seen the animal and it had made a perfect recovery.

Professor Wright said he was interested in Mr. Spicer's specimen of *Filaria immitis* from the heart of the dog from China. A few weeks ago the College received a letter from a veterinary surgeon who said that he had a case he would like them to see, because it was one of *Filaria immitis* in the dog's heart, and he offered to send the dog along. The owner's address was asked for, but as the dog had not arrived after a few days, he (Professor Wright) wrote to the owner and said he would be interested to see the dog. It was of particular interest to find out how the veterinary surgeon had diagnosed *Filaria immitis*. The owner was a person of some understanding, at any rate, because she wrote to say that she did not think her dog was suffering from the peculiar disease, the name of which she did not understand, and if there were any further symptoms she would bring it. As it had not arrived, the first case of *Filaria immitis* in the dog had not been seen at the College.

Referring to Mr. Spicer's second case, that of obstruction of the small intestine in the dog, that case was particularly interesting, because they had tried to improve their knowledge of diagnosis in regard to the various conditions of the alimentary canal in the dog which provoked vomiting. The symptoms usually associated with obstruction of the small gut were rather typical and, combined with careful palpation of the animal's abdomen and by the rectum, usually enabled one to make a fairly accurate diagnosis. The question was how long there had been the obstruction in this small gut. He did not think that it was more than 48 hours before acute symptoms were shown. Where stones had passed from a dog's stomach into the small intestine, whilst it might be known that they were present in the stomach and might be there for months or years and cause little other than what appeared to be very mild gastritis, as soon as they passed into the small intestine, it was obvious that the

dog was acutely ill. The symptoms were those of continuous vomiting, and unless one operated within 48 hours of the obstruction occurring, the chance of success was small. If one operated within 48 hours, enterotomy sufficed, and the bowel was not often necrosed to a degree where it could not regenerate after the foreign body had been removed. If it was more than 48 hours, he would adopt Mr. Spicer's policy of a bowel resection and anastomosis. He did not know how Mr. Spicer fared, but the mortality from anastomosis in his hands had been high, whereas the mortality in enterotomy, providing the operation was carried out early, was surprisingly small.

Professor G. H. Wooldridge supported Professor Wright's views with regard to the symptoms being fairly definite and characteristic in the case of obstructions in the intestines of the dog, but there were modifications to be met with in certain cases. He had recently operated on a Sealyham which had been vomiting not very persistently for two days. On making palpation and rectal exploration no trace of a foreign body could be found. Careful examination failed to reveal anything, but the symptoms appeared to be so characteristic that it was decided that the only alternative was an X-ray. This case was rather appropriate because it pointed out the advantage of an X-ray. A diagnosis in the case of these foreign bodies could generally be made without resort to an X-ray. It was, however, decided that there should be an X-ray, particularly because, on making enquiry from the owner, and asking whether the animal had been in the habit of swallowing stones or playing with them, she said it had on former occasions, but the last time it had taken anything of this kind to her knowledge was at least six weeks before, when the dog vomited several pebbles. She had watched the dog carefully and was certain that it had not been able to get hold of any pebbles since then. In view of that history he was all the more anxious for an X-ray, which revealed a pebble nearly the size of a walnut. It was decided that an operation was necessary and when the animal was opened, a stone was found in the intestine, two or three inches from the pylorus. It was removed and the dog recovered, but the interesting thing was the difference in the position of the stone as shown in the X-ray from what it was in the bowel itself when the bowel was opened out. It was possible it had just got started in the pylorus and had caused the symptoms that day; they were not so pronounced nor was there any drinking of water. It was rather an unusual history in that respect, but in that instance simple enterotomy was all that was necessary, because there was no adhesion and no sticking of bone through the bowel wall. Where the bowel wall was directly injured it was not wise to do an enterotomy only, an enterostomy with an anastomosis was the only line of procedure. He was glad to say that his successes appeared to be more frequent than those of Professor Wright. He had been perhaps more fortunate, but the important thing was whether or not one had already got a peritonitis before one operated; if the damage to the bowel wall was such that one had peritonitis it was hopeless, and he supposed that he must have been fortunate in getting them earlier than Professor Wright had done.

Professor Wright said he would like to support Professor Wooldridge's views. A foreign body in the stomach, or the first six inches of the duodenum, could not be palpated through the abdomen of a normal dog, but anything beyond that point was freely movable. In making a diagnosis, if an enlargement in the abdomen was freely movable, *i.e.*, if it could be brought down to the abdominal floor, it could be lost by pushing up under the diaphragm, or it could be brought back towards the pelvic cavity, where it could be palpated by a finger in the rectum; that was the case of a foreign body in the small gut. He stated that the only success he had had with anastamosis had been by lateral anastomasis. He had recorded a case in the *Journal* where there were about eight inches of necrotic bowel as the result of a street accident. The necrotic portion was removed and the gut was anastomosed by a lateral anastomosis and the dog was still alive. That was about two years ago and was the only case in which he had been successful.

Mr. R. A. Willett, referring to the length of time a foreign body took to pass along the alimentary canal, mentioned the case of a dog, brought to him the previous evening, in which there was very bad straining, and that was all. On examining the inside of the rectum, there was a date stone lying cross-ways. The history was that the dog stole a date on Christmas Day; since then the stone appeared to have been gradually passing along the alimentary canal up to the previous night. He did not know why a smooth object had taken all that time to finish up cross-ways, but it struck him as being a long time for anything to be in a dog, and to give rise to no symptoms until the end.

Professor G. H. Wooldridge asked permission to make further reference to the length of time these things or similar bodies took to pass through the intestines. About a year ago a dog was brought to the Royal Veterinary College which had a mania for safety pins; whenever it saw a safety pin fastened on to the apron of its mistress, it was not happy until it got it. In the first case when one was got from the animal, there was crying out when it defæcated, and it squatted on its hind quarters, being in great pain. Upon examination per rectum, a safety pin was found with the point forward fortunately, the butt end pointing downwards. The owner of the animal said it had only

swallowed it the day before. The truth of that was doubted, and a few days later the owner brought the animal again in the same condition. She said it had got that safety pin less than 24 hours before and by this time it had again reached the rectum. On different occasions three safety pins were taken from that dog's rectum, and they had taken 24 hours on an average to pass right through to the rectum itself.

Mr. F. W. Willett recalled the case of a dog that had three pennies in its stomach. The dog was a publican's, and six months before he used to beg for biscuits, being given a penny to pay for them. He swallowed the pennies and one night, late in the summer, the owner stopped him (Mr. Willett) at his gate and gave him three pennies which the dog had swallowed six months before, and had only vomited in June.

Before passing to the next item the President, on behalf of the Society, thanked the gentlemen who had produced the specimens which had been, to his knowledge, brought at great inconvenience in many cases.

New Fellows.—Mr. David Wyllie (Wembley), Mr. William C. C. Taylor (Muswell Hill), and Mr. H. G. MacShane (Chelmsford), were nominated as Fellows by the President, seconded by the Secretary, while the election as a Fellow of the Society was unanimously made of Lieut.-Colonel H. Greenfield, R.A.V.C. (Camberley), who was proposed by Professor J. McCunn and seconded by Professor J. G. Wright.

The Advisability of Making Johne's Disease Notifiable

The President said that this item had been on their agenda before, but had been put back until that evening, and he hoped that any country members who were present would speak to it.

The Secretary read the following extract from a letter written by Mr. Bywater, who was unable to attend the meeting: "I am of the opinion that, notwithstanding objections raised with regard to diagnosis, something should be done to bring Johne's disease under the control of the Diseases of Animals Acts."

The President mentioned that, in a recent letter in the *Record*, Mr. Tutt, of Winchester, pointed out that there could not be any great expenditure in making this disease notifiable, because under the present Tuberculosis Order a veterinary surgeon who visits a beast is in a position to say whether he thinks it is Johne's disease or tuberculosis. Some divisions had been rather inclined to say that it was not time to make it notifiable, on account of the stringency of financial matters. That was partly true, but seeing that the two diseases were clinically somewhat alike and could be diagnosed at the same time, he did not think that should prevent its consideration. He was not a country practitioner and knew nothing about Johne's disease, but would like to hear the opinion of Fellows present.

Major Taylor, speaking as a country practitioner, said he recognised the fact that Johne's disease was rapidly becoming more prevalent. There was no difficulty in diagnosing the disease when it was firmly established, but the difficulty was to diagnose in the case of young animals. There was no doubt that it existed in the very young bovine species, but no reliable test for its presence was available, and at the present time there was quite a profitable trade being done amongst a certain class of cattle dealers in what they called in his district, "Johnny Slinks," which were advanced cases of Johne's disease. He inspected a market every week and it was astounding to see the number of animals suffering from advanced Johne's disease, brought into the market for sale. As they knew, there was no jurisdiction for an inspector of the Ministry of Agriculture to prevent this, as there was in the case of an emaciated cow suffering from advanced tuberculosis, under which Order it could be removed from the market and reported to the police or slaughtered at a nominated slaughterhouse under an inspector's supervision. On Christmas evening, as he was sitting down to dinner, he had an urgent message from a railway company to go down to their sidings and examine some animals that were down in the bottom of a truck. They were lying in an exhausted and emaciated condition, and quite unable to get up, suffering obviously from advanced Johne's disease. This trade was becoming a very prevalent one between counties in the Midlands and the South of England. The authorities were perfectly well aware of the fact that this trade was going on and was growing to an alarming extent, and every attempt was being made to check it under the present law, which required extension and revision. Personally, he thought that the time had arrived when the disease should be made a notifiable one, and it could be dealt with quite conveniently in conjunction with advanced cases of tuberculosis. An expensive scheme on very scientific lines to carry out early diagnoses of the disease would be at the present moment impossible and impracticable, but a very great deal of good could be done by eliminating the advanced clinical cases, which scheme inspectors could carry out at a small expense to the country in conjunction with the existing legislation dealing with chronic tuberculosis. There was a theory at one time that Johne's disease and tuberculosis did not exist at the same time. He had heard that opinion expressed in that room, but he had frequently found them together.

Mr. F. W. Willett, who said he had not a very large experience of these animals, appreciated the force of Major Taylor's observations. If they could get the opinion of the Veterinary Inspectors who attended the markets of the country, they were the men who could give reliable information. Although he had not been

to a market himself for some years, he knew that this trade was going on. His own district was fairly healthy, but there was a case a short time ago where he was asked to prescribe for an animal, which he did, and the animal got very much better. The owner said he wanted to keep her until she had calved in April or May. He (Mr. Willett) supposed that she would be passed on to someone else, but that was a case that certainly should not be passed on. At the moment they were powerless to do anything. He wanted the owner to have the animal destroyed but the owner said, "Cannot you give me something to keep her going and improve her appetite until she calves?" If that case had been reportable, he would have insisted on reporting it himself.

Dr. Sheather, although he was unable to say anything about the subject from the point of view of a practitioner, thought that good would be done if those animals which were clinical cases were eliminated; they were not the sole but the main danger. He had had considerable experience in trying to get a diagnosis from clinical cases, and he had found that if the fæces were sufficiently fluid to pour from one vessel into another you could find a bacillus which was absolutely indistinguishable from that of Johne's disease, by microscopic examination of the fæces, if you adopted a suitable technique. It was the animal that was passing out bacilli in numbers that was the source of danger.

The President enquired whether Dr. Sheather would support the "National" in making the disease notifiable. Dr. Sheather said that he would do so.

The President having enquired if anybody wished to make a proposition, Major Taylor said he would make a definite proposition "That the time has arrived when Johne's disease should be made notifiable, under the Contagious Diseases of Animals Act." Mr. F. W. Willett had great pleasure in seconding that proposition.

The President having remarked that the subject did not appear to interest the Central Division, Professor Wooldridge observed that some of them saw difficulties if the resolution were put in those words, because, as Dr. Sheather had pointed out, it was the advanced case that was the danger, whereas the others could very often be treated and fed, if they were dealt with in the early stages, and passed on to the butcher. If notification were adopted and slaughter followed, a lot of damage would be done to the farmer; on the other hand, if the resolution were worded that *advanced* Johne's disease should be notified, the difficulty arose as to how advanced, and where the line was to be drawn. At the moment there were many difficulties but he realised that an enormous lot might be saved to farmers if these wasters from Johne's disease were eliminated as soon as possible.

Major Taylor said he was willing to alter the resolution to "diagnosable." Professor Wooldridge said that anything that was not diagnosable could not be reported. Why not say, "Advanced or clinical Johne's disease"? Major Taylor agreed to the alteration, as suggested by Professor Wooldridge, and Mr. F. W. Willett also agreed to second the proposition in the altered form.

Professor Wright hoped he might be allowed to speak on this subject, although he had not seen a case of Johne's disease for some years. He enquired what was to be the object of making the condition a notifiable disease? The whole object, one concluded, was with a view to the eradication of Johne's disease. If one waited until the cow was so obviously a case of Johne's disease that there could be no question about it clinically, could it honestly be thought that by destroying that animal the incidence of Johne's disease would be reduced, and that the reduction would be commensurate with the cost of carrying out the Order, in these stringent financial times? The question rather involved early diagnosis, and he had hoped that Dr. Sheather would give them the benefit of his experience as to the value of johnin as a diagnostic agent. It was generally agreed that the Tuberculosis Order failed, to a great degree, in reducing the incidence of that disease in cattle, and despite the tuberculin test a variety of opinions could be expressed as to what constituted a cow coming under the Tuberculosis Order. He did not see that any advantage would accrue from any method of nibbling at an attempt to eradicate the disease. If the money that was to be spent in the whole country, was instead directed to the complete eradication from one district, would not it be well spent?

Major Taylor agreed with Professor Wright's expression of opinion in regard to "nibbling at it," but although they were only nibbling at tuberculosis under the Tuberculosis Order, no one would contend that they were not doing a great service to the country in eliminating advanced cases of tuberculosis which would not otherwise be dealt with at all. His object in proposing the resolution was merely to get *something* done in the same way in regard to Johne's disease, because at the present moment no steps could be taken and yet there existed this visible danger possibly to human beings, and a source of great loss to farmers and dairymen—a greater commercial loss than from tuberculosis, in his opinion.

Dr. Sheather said that Professor Wright referred to his experience of diagnosing early cases, but he purposely avoided mentioning that, because he had had no experience of diagnosing Johne's disease in the early stages. He was only making a material which other people were using; he knew the results and he would be stealing their thunder if he mentioned them now. They would be given in print, but he did not feel justified in speaking about a thing of which he had no experience, and he was sure that the President would

agree that he was wise in not saying anything about it. To the last observation the President assented.

Mr. D. Johnston thought a great deal of good could be done if Johne's disease was made notifiable, because it was only too common in his district in Surrey for the farmer to keep an animal with Johne's disease until it was past all hope. This practice was not being diminished by some correspondence which had appeared in the *Farmer and Stock Breeder* lately, advocating sloe wine as a cure for the disease. In fact, the man advocating it had had so many orders that he had run out of it.

Mr. Johnston said that more cases of Johne's disease than actual tuberculosis that came within the scope of the Tuberculosis Order, were encountered in routine inspections, and although it had been described as a nibble, a large number of cows in an advanced stage of Johne's disease could thus be eliminated. At present nothing more could be done than to advise immediate slaughter, and in too many cases this advice was not carried out until the animal was beyond all hope of recovery.

Capt. A. Spicer observed that as Professor Wright had raised the other side of the question, he would like to support him. Apart from the benefit of the Tuberculosis Order stopping human beings receiving infection, he did not think the present Tuberculosis Order had done any good whatever. One had only to read the Report of the Hannah Institute to realise how easily tuberculosis was spread without any of those bad cases. One escaped those cases, but the difficulty was in keeping a herd clean after one had got it clean. He had two of those certified Grade A herds and it was very easy to get infection; the bad cases of tuberculosis did not have much to do with it from the infection point of view. He was afraid they would find the same thing with Johne's disease. If that disease were so terribly infectious, how was it, if one looked back over one's practice for a number of years, that every now and then one found Johne's disease in cases of farms practically, in vulgar parlance, rotten with it? It would die out and stay dead for perhaps six or three or two years, and perhaps not come back again.

The following resolution, proposed by Major Taylor and seconded by Mr. F. Willett: "That the time has arrived when advanced or clinical cases of Johne's disease should be notifiable under the Contagious Diseases of Animals Act" was put to the meeting and carried with one dissentient.

It was pointed out that there were a number of abstentions.

The President: That is a recommendation to the "National."

Paper.—The President (Major W. Hamilton Kirk) then read his paper on X-ray diagnosis, and gave a demonstration of a portable apparatus which he had brought with him.

At the conclusion of the paper, Professor G. H. Wooldridge said he had very great doubt at that late hour of the evening whether any useful purpose could be served by opening a general discussion upon it, and suggested that this should be adjourned. At the same time, he fully realised that there were a number of gentlemen present that evening who would perhaps be unable to be present on a future occasion—he was thinking about Major Pryer in particular. If the discussion were adjourned and Major Pryer were able to be present on another occasion to enter into the discussion, he would very much like to hear his views, because he knew the good work Major Pryer had done in connection with this matter, and felt sure that his contribution to such a discussion would be helpful.

Major Pryer, who said he was honoured to think that they should wish to hear him say anything, intimated that it would be possible for him to come to an adjourned discussion, and that he would make every effort to do so. It was therefore agreed to adjourn the discussion to the next meeting.

The President enquired whether the members would like to see the pictures again. Professor Wooldridge said that he understood there were 53 or 54 of them, and as it would take some time to look at them, that was all the more reason for adjourning the discussion.

The meeting terminated with the passing of a vote of thanks to the President for his conduct in the Chair. J. F. Macdonald, *Hon. Secretary.*

Notes and News

DIARY OF EVENTS

Feb. 15th.—N.V.M.A. Editorial Committee Meeting at 2, Verulam Buildings, Gray's Inn, W.C.1.

Feb. 19th.—Annual Dance of the Royal Veterinary College, at the Hotel Russell.

Feb. 19th.—Annual Meeting of the Eastern Counties Division, N.V.M.A., at Ipswich.

Feb. 26th.—Meeting and Annual Dinner of the Midland Counties Division, N.V.M.A., at Birmingham.

Feb. 26th.—Yorkshire Division, N.V.M.A.: Joint Meeting with the Yorkshire Branch of the Society of Medical Officers of Health, at Leeds.

March 4th.—Yorkshire Division, N.V.M.A. Dinner-Dance at Leeds.

March 5th.—Annual General Meeting of the North of England Division, at Newcastle-on-Tyne.

April 1st.—R.C.V.S. Annual Fees due 1932-33.

April 6th.—R.C.V.S. Registration Committee.
April 7th.—R.C.V.S. Examination, Registration and Parliamentary Committees.
April 8th.—R.C.V.S. Library and Finance Committees; Council Meetings.
May 5th.—R.C.V.S. Last day for Nominations for election to Council.
May 12th.—D.V.S.M. Examination entries due.
May 19th.—R.C.V.S. Council Election Voting Papers issued.
May 26th.—R.C.V.S. Last day for receipt of Voting Papers.
June 2nd.—R.C.V.S. Annual General Meeting. V.V.B. Fund Annual General Meeting.
June 9th.—D.V.S.M. Written Examination begins.
June 13th.—D.V.S.M. Oral Examination begins.
June 29th.—R.C.V.S. Committee Meetings begin.
June 30th.—R.C.V.S. Annual Dinner.
July 1st.—R.C.V.S. Council Meetings.
July 6th.—R.C.V.S. Summer Examinations begin.
Aug. 8th-13th.—N.V.M.A. Jubilee Congress at Folkestone.

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R.C.V.S. OBITUARY

Hearne, Edward, o.b.e., Major Royal Army Veterinary Corps. Graduated Dublin, December 19th, 1905. Died February 3rd, 1932.

Platt, James, Penwortham Lodge, Cambridge Road, Southport, Lancs. Graduated New Edinburgh, April 21st, 1884. Died February 2nd, 1932, aged 71 years.

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The Late Major Hearne

It is with deep regret that we have to announce the sudden death of Major E. Hearne, o.b.e., which took place at Malta, whilst playing polo, on February 3rd, 1932, at the early age of 49 years.

The deceased officer graduated in Dublin on December 19th, 1905; was gazetted to the Royal Army Veterinary Corps in the rank of Lieutenant on August 28th, 1907; promoted Captain, August 28th, 1919; Major, August 28th, 1922.

Major Hearne served in France and Belgium during the Great War, was three times mentioned in despatches and awarded the O.B.E. and the following medals:—1914, Star and Clasp; British War Medal, and Victory Medal; he was also awarded the Ordre du Merité Agricole, Francais, in 1917. He also saw service in South Africa, India, and with the British Army of the Rhine.

Major Hearne was a widower, but leaves two daughters, to whom all officers of the Corps tender their deepest sympathy in their sad loss.

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The Late Dr. Stenhouse Williams.

A pioneer of the "clean milk" movement has passed away in Dr. Stenhouse Williams, Director of the National Institute for Research in Dairying at Shinfield, Reading, and Research Professor in Dairy Bacteriology at the University of Reading, who was found unconscious in the Irish mail train at Euston on its arrival from Holyhead on Tuesday of last week and died later after removal to University College Hospital. Dr. Stenhouse Williams, whose research work was mainly directed to the production of milk free from tuberculous taint, was first appointed assistant superintendent of the Liverpool Institute of Comparative Pathology. He was later bacteriologist to the David Lewis Northern Hospital, Liverpool, and lecturer in public health bacteriology at Liverpool University. His appointment to the Institute of Research in Dairying, which was established in 1912, was a recognition both of the practical value of his work in Liverpool and his distinguished academic career.

"His research at Reading," says *The Times*, was carried out with industry and enthusiasm. He held that its results showed that nearly the whole milk production of the country could be made non-tuberculous and that fresh milk, without sterilisation, could then be a universally safe article of diet. In this he was against a strong body of medical opinion."

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"CENTRAL" PRESIDENT'S CAR RIFLED

We regret to learn of the severe loss sustained by Major Hamilton Kirk, President of the Central Veterinary Society, following upon his demonstration of the use of his portable X-ray apparatus at a meeting of the Society on Thursday of last week.

It appears that on his way home Major Kirk left his locked car standing outside a restaurant in Regent Street and on his emergence found that two of the doors of the car had been forced open with a "jemmy" and the whole of the contents cleared, including his portable X-ray apparatus, all the products of his X-ray work during the last seven months, drugs, instruments and car accessories. All that the police have since been able to recover are some of the X-ray photographs, found in a churchyard at Tufnell Park.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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A WARNING

To the Editor of the Veterinary Record.

Sir,—I wish to issue a timely warning to Ms.R.C.V.S. not to effect the second-hand- purchase of a Phillips Metalix portable X-ray apparatus (bearing the makers' number 4,760, or equally significant, no number at all) as it will probably be the one which was burgled from my car last Thursday night. Having demonstrated this apparatus and exhibited some 54 skiagraphs before the Central Veterinary Society, I proceeded homewards, but stopped for supper at a restaurant in Regent Street. The locked doors of my car were wrenched open with a "jemmy" and the complete contents cleared. The apparatus was not insured against theft and I have therefore been obliged to replace it with a new one.

I strongly advise any member who is in possession of expensive scientific apparatus, to lose no time in insuring it against all risks. I am now locking the stable door after the horse has gone.

Yours faithfully,

Hamilton Kirk.

938, Finchley Road,
Golders Green,
February 8th, 1932.